INTERNATIONAL
MEDICAL MAGAZINE.

Vol. IV.] SEPTEMBER, 1895. [No. 8.

ORIGINAL COMMUNICATIONS.

PALUDIC PATHOLOGY.

BY EDWARD BLAKE, M.D.,
London, England.

THERE is so little certainty in medicine that it is quite pleasant to feel that the pathology of marsh fever or ague has now, thanks to the labors of Laveran and other pathologists, been placed on a definite and absolute basis.

Dr. A. Laveran, who was an army surgeon at Algiers, is now professor of medicine in the French school of Val de Grâce. He was the first to observe, in the blood taken from malarious soldiers, pigmented discoid bodies, and also spherical pigmented bodies possessing flagella, whose extremely rapid and varied movements left no doubt as to their nature: this was on the 6th of November, 1880. This observation was published in 1881, in a work printed in Paris, and entitled "De la Nature parasitaire des Accidents de l'Impaludisme."

It is difficult to overestimate the importance of Laveran's brilliant discovery. As with all new truths, its announcement raised, of course, a storm of opposition; but the most coldly critical pathologists now admit that the hæmatozoön of Laveran has been found in all types of acute malarial infection when sought by competent persons, and that it is present in no other disease but paludism,—that is to say, as a necessarily associated condition. The researches of Laveran have also thrown a profoundly interesting light on the method of production of melanæmia, a condition long since recognized as pathognomonic of palustral fever. To that matter we will presently return.

There is very little doubt that the periodicity of ague depends in part on the sudden production, and subsequent liberation in the blood, of the

toxins of this specific sporozoön. In certain forms of paludism, segmentation proceeds rapidly; the subjects of these forms suffer from the tertian and the double tertian forms of ague; whilst the long evolutions lead to a quartan, and the irregular forms are accounted for by different generations of germs, running independent courses, at times parallel but not coincident.

It is scarcely needful to remind the reader that the vegetable kingdom is divided into (1) cellular and (2) vasculo-cellular growths. To the former belong the vast families of the Coccaceæ and of the Bacteriaceæ.

These may be temporarily arranged thus:

Coccaceæ.....	Micrococci (staphylococci of various kinds). Streptococci. Merismopedia. Sarcina.
Bacteriaceæ	Bacilli—sporiferous—as anthrax. Bacteria—non-sporiferous—as typhoid. Spirilla. Vibriones. Clostridia.

All these belong to the *vegetable* world; not so, however, the micro-organism of malaria. *That* is a *protozoön*,—*i.e.*, it belongs to the animal kingdom,—and to this fact may be attributed the value of quinine, which is but a feeble germicide as regards the vegetable forms of life.

The more primitive forms of animal life are subdivided into (1) protozoa, or single-celled organisms, (2) metazoa or enterozoa,—that is, compound-celled organisms.

It is now generally recognized that an enormous number and variety of animal organisms[1] make their home in the human body. Strange to say, many species are less inimical to life than the vegetable parasites. Dysentery, chyluria, and specific hæmaturia have been shown to depend on minute animal organisms either protozoic or metazoic; endemic goitre and the infective carcinomata, both prone to follow the general lines of rivers and marshes, possibly possess a similar etiology.

The stirring events which underlie the phenomenon of periodicity in ague are intensely interesting. Let us take, as an example, the phases in the evolution cycle of the parasite of quartan fever.

First day of apyrexia.—There is a progressive growth of the parasite, with progressive transformation of hæmoglobin into a kind of melanin.

Second day of apyrexia.—The parasite has invaded the greater part of the blood-corpuscle.

Third day.—This is the day of paroxysm. It is understood that the paroxysm begins about mid-day; at this time the blood-pigment collects in the centre of the protozoön, the parasite breaks up, segmentation being

[1] For the most complete account of these, see Davidson's "Diseases of Tropical Climates."

complete, and the toxins of the organism are suddenly liberated in the circulation. They soon reach the nervous system, for which they appear to possess an elective affinity.

These toxins may arrest the downward metabolism of the tissues, leading to a fall of temperature, or they may stimulate the thermogenic centres, which would lead to increase of body heat.

Each individual parasite now becomes eight or more new parasites. These in their turn attach themselves to fresh red corpuscles,—that is to say, if they are fortunate enough to evade the combined attacks of the various forms of leucocytes. In the three succeeding days this "tragedy in three acts" is played once more.

It is stated by the translator of Laveran's work that, in quite a short time, if quinine be not given, the red corpuscles will fall in number from 4,500,000 per cubic millimetre to 800,000. From this the enormous total loss can readily be conceived.

Quinine is extremely fatal to this parasitic organism, but that it is occasionally fatal to the unfortunate patient, who acts as host, should be borne in mind. Laveran, in writing of the evil effects of quinine, acquits it, however, of causing enlargement of the abdominal viscera: he says that the largest spleens are found in natives who have never taken quinine.

The young physician, blessed with heroic tendencies, should, however, when ordering quinine, bear in mind the following important points. Acute mania has followed a dose of less than twenty grains (grammes 1.25). An asthmatic patient, after forty-five grains taken in one dose, had tinnitus, vertigo, and excessive vomiting. After the lapse of seven hours he was blind, deaf, and delirious. Very small doses have caused facial erythema, orthopnœa, and urticaria. An infant, after a hypodermic injection of thirty centigrammes (about four grains), had scarlatinal eruption, colic, and dysentery. Intense coldness, aphasia, gastro-intestinal hemorrhages, and hæmoglobinuria have also been noted as possible results of cinchonism; the last symptom has been observed many times.

In man, as well as in animals, it is found that quinine rapidly destroys the blood-corpuscles when given in large doses to the healthy.

These are valuable suggestions for the use of quinine in general medicine.

An insane physician destroyed himself by taking two hundred and twenty grammes (three thousand six hundred grains) in ten or twelve days.

A soldier took one hundred and eighty grains of quinine, and in thirty minutes had vomiting, cramp in stomach (tetanus of abdominal recti), pallor, dilated pupils, shallow respiration, shivering, with a small, irregular, and at times imperceptible pulse. He finally succumbed to "syncope," and Laveran says, somewhat incautiously, that therefore quinine is a cardiac poison! We have here a picture of death such as occurs from diphtheria and similar septic diseases, in which we now know that sepsin destroys life by suspending the inhibitory cardiac control and then by paralyzing the

phrenic. The attack begins and ends with vagal symptoms, yet death comes immediately from the diaphragmatic palsy.

One cannot fail to be struck with the resemblance between the action of quinine and certain other drugs, such as chloral and antipyrin.

Dr. Laveran says that the sulphate is a very wasteful form of quinine: it contains relatively very little of the drug and it is besides very insoluble. The sulphate requires much more water to dissolve it than the hydrochlorate. The neutral hydrochlorate requires only 0.66 of water, and it contains 81.61 parts of quinine in one hundred.

As to the matter of dose, Laveran recommends fifteen grains of the hydrochlorate daily for three days, then four days with no quinine, then two grains daily for three days, then no quinine, and so on.

It is not good to give quinine very late in the evening, as it is apt to produce sleeplessness.

The great battle of the sporozoa with the opposing ranks of phagocytes is waged in the spleen; hence the spleen becomes enormously distended, having in it not only the two armies of occupation but also the materials of war, the sutlers, the commissariat, and afterwards the *débris* of engagements. We can understand too the serious results, under such conditions, of splenic traumatism.

The parasite of palustral blood is seen under rather varied forms, all probably differentiated from a common type. They may be classed under the following four heads:

1. Discoid[1]
2. Crescentic
3. Rose-shaped or segmented

(2 and 3: found inside the body.)

4. Flagellate: this form has never been seen inside the body.

Of these, by far the most common is the disk-like. It was found by Laveran three hundred and eighty-nine times out of four hundred and thirty-two cases of ague.

The detection of the discoid bodies requires no special skill nor aptitude. All that is needful is a high power; a twelfth objective does very well. The chief rules of procedure are—

1. Cleanse cover-glasses in water, then in solution of hydrochloric acid, and finally in ether, then dry over the spirit flame.

2. Let the patient vigorously scrub a finger with hot water and soap and dry it very carefully, and then apply ether, as *the least moisture spoils the preparation* by causing crenation of corpuscles.

3. Ligature the root of the finger, and prick the congested pad with a needle which has been passed through the flame of a spirit lamp.

4. Let the first drop be wiped away with a perfectly clean cloth, and collect the second droplet on the cleansed cover-glass.

[1] Laveran's term for this form is "spherical," which is incorrect: they are not *globular* but *lenticular*.

5. Quickly apply the cover-glass to a perfectly dry and faultlessly clean slide; no cement is necessary.

6. Prepare several such slides, rejecting those in which the corpuscles are heaped up or arranged in rouleaux.

7. It is essential to take a very small quantity of blood, so that there may be only a single layer of flattened corpuscles.

Examine the slides so prepared with a twelfth immersion lens, and in not too bright an illumination. Scrutinize the interior of every corpuscle in the field, looking in them for specks of black pigment surrounded by a pale, hyaline, slightly or markedly amœboid substance; also for smaller, pale, unpigmented, hyaline, and more actively amœboid bodies in the same situation. These are the intracorpuscular and commoner forms of the malaria parasite, and are always present in malarial fevers which have not been treated by quinine. The crescent and flagellated forms and the pigmented leucocytes—although the two former are more rarely encountered, and only in certain cases—are much more easily recognized. If no parasitic form be found in the first field, pass to a second, a third, and so on, devoting at least half an hour to the examination of each slide before pronouncing definitely on the absence of the parasite.

The flagellate form was found by Laveran to be present in ninety-two out of four hundred and thirty-two cases; they are usually very few in number, and naturally, therefore, more difficult to find. As a matter of fact, they occur in all cases; so to detect them is really only a matter of looking often and long enough.

With regard to the flagellate form, the following extremely ingenious suggestions have been made by Dr. Patrick Manson.

1. If the hæmatozoön of marsh fever had no means of migrating from the body of the animal in the blood of which it had taken up its residence, it is obvious that its existence would tend to be limited by the term of life enjoyed by its host.

2. The flagellated body is developed for purposes of change of host. It tends to appear when needed for this purpose, and does not disappear until this has been effected. This body has been recognized only at a definite time after the parasite has been removed from the human body. From this circumstance it may be justly inferred that the flagellated body forms an essential element in the life-history of the parasite. It constitutes a needful phase in its extracorporal existence. Dr. Manson considers, then, that the spore of the protozoön is endowed with the power of developing flagella for purposes of distribution after leaving its human host.

This is by no means a unique phenomenon in the history of primitive organisms. For example, in many mollusca the young have developed specialized locomotor organs. The embryo mussel (Glochidium) can swim by flapping the valves of the exoskeleton. Similarly, whilst the adult oyster is passive, the young is motile.

In the case of the zoöid vorticella, reproduction may take place by the

splitting of the protozoön into eight microgonidia. These microgonidia develop cilia which enable them to swim. This motile embryo settles down and again becomes the passive adult vorticella.

In the distomida the life history of *Distoma hepatica* is as follows:

1. The ovum segments in the oviduct and gives rise to a free embryo. It bears locomotive cilia.

2. This free embryo enters a species of water-snail, losing the locomotive cilia. This is called the "sporocyst" stage.

3. This sporocyst becomes a "redia," which has a long cylindrical body. Posteriorly there are developed two blunt processes, by which the redia can wander through the tissues of the snail.

4. The redia develops daughter rediæ, which resemble tadpoles, the tail being the motile organ. These daughter rediæ make their way out of the snail, lose the tail, become encysted, and are swallowed by a sheep; now the cyst is dissolved by the gastric juice, and an individual redia ascends the bile-duct, becoming, in six weeks, a mature distomum.

Nearly all the trematodes at some stage or other have possessed locomotor organs. The bothriocephalidæ (cestodes) also have ciliated embryos.

In the minds of those Anglo-Indians who return to live at home, there is a settled conviction that once a man has had "fever" he is ever after subject to a return of it. It is perfectly true that if the victim of jungle fever or ague has had an attack, then in later years any depressing influence may induce recrudescent malaria; though many so-called "relapses" are really some new infection, such as Weil's disease, influenza, and a host of other unclassified specific fevers.

Even if the growth and development of the protozoön be unchecked by germicidal drugs, nature is quite capable in the case of a vigorous and well-fed man of encountering and of destroying the parasite unaided. But it is equally certain that in most cases either the parasite must kill the man or the man must slay the parasite. Such latency as that described by de Brun, of nineteen years, though not impossible is exceedingly rare.

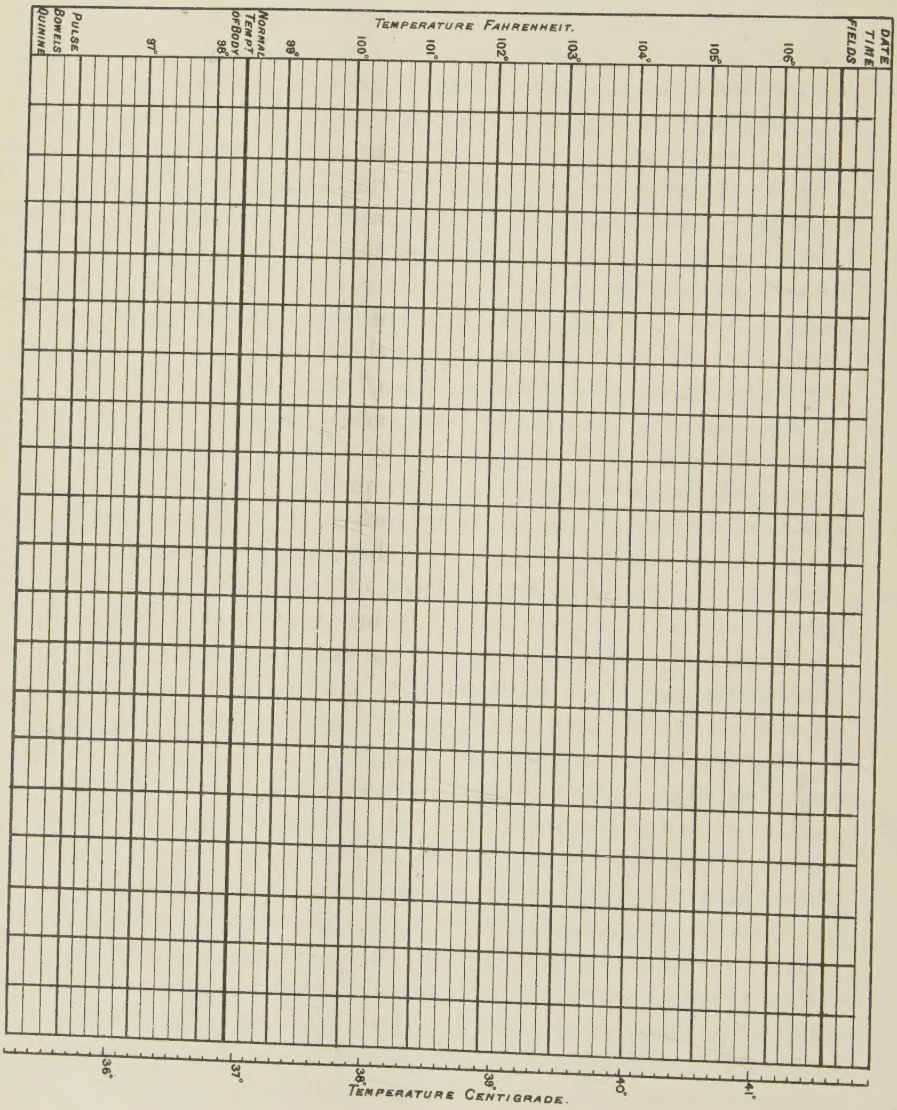
The Italian name *mal'aria*, or tainted atmosphere, is not quite hopelessly wrong, as Laveran's germ may be inhaled; but, as has been supposed with regard to the ovum of bilharzia (Distomum hæmatobium), it is also taken into the system with drinking-water. Dr. Manson considers that ague is not a water-borne disease. Its method of convection is probably by means of "fly-dust." The progressive increase of the intervals between attacks of ague is due probably to a growing torpor of the nervous system. Nerve matter becomes callous with toxic tolerance. But when a more normal irritability comes, the influence of catabolic products arrested by shock, or by fresh toxins, as those of influenza, is felt again. If extractives predominate over alkaloids, a rise of temperature takes place, and this is easily mistaken for a reappearance of ague.

It is well known that quinine is occasionally powerless in these relapses, which should be encountered by remedies like arsenic, ceanothus, nux

Digitized by the Internet Archive
in 2026

https://archive.org/details/international-medical-magazine_1895-09_4_8

CHART I.



Dr. Manson's combined Temperature and Malaria Chart.

vomica, sulphurous acid, phosphoric acid, tincture of Ignatius' bean, mercury, and the chalybeates. The selected remedy should be related to the whole pathological group, if possible.

The practitioner should not be too eager to pull down the temperature. Fortunately, as a rule, he cannot do so. It is probable that all the six forms of leucocytes at present recognized are much more active in doing their work of dealing with the enemy when the temperature of the tissues is raised above the normal point. The popular idea that "sharp attacks are soon over" may be seen to have a genuinely scientific basis. Whilst the circulation in the capillaries of the brain and the intestines especially may be embarrassed in certain cases by the mere mechanical effect of masses of protozoa, the nerve symptoms occurring in ague are not the immediate result of the actual presence of the parasite itself; nor, indeed, excepting that it induces melanæmia followed by anæmia, is the parasite in itself the cause of all the great variety of general symptoms found in the course of paludal fever. The symptoms are caused by the toxins which the protozoön produces. This was suggested by Bouchard in 1890, in his very remarkable "Essai d'une Théorie de l'Infection," at the Berlin Congress.

There he said, "One thing seems certain to me; it is that the bacteria act on animals by the matters which they secrete;" and, further, "the fever of the infectious diseases is toxic, it is provoked by diastases such as that studied by Roussy, and by ptomaines such as the amidalein of Brieger."

There are grounds for supposing that this view is accurate; it is supported by the observations of Brousse, of Roque, and of Lemoine, who found the urinary toxicity increased during an accession of fever.

Through the courtesy of Dr. Manson and of the editors of the *British Medical Journal* I am able to add greatly to the interest of this paper by reproducing Dr. Manson's charts and his own description of their use.[1]

The value of the temperature chart and of similar graphic methods of projecting clinical observations is universally admitted. Such methods greatly facilitate the recording, and still more the comprehension and comparison of the facts in the clinical tableau. The "malaria chart" (see Charts I. and II.) is an attempt to apply the same principle, so far as the nature of the subject will permit, to the recording in cases of malarial fever of the types and varying phases of the malaria organism along with, and in comparison with, the fluctuations of body temperature. The scientific and practical value of such a chart is obvious. It is believed that after a little practice these combined records will be as easily made and read as those of temperature alone, and it is hoped that they will be of assistance in unravelling some of the many difficulties and obscurities at present connected with the malaria question.

---

[1] A Malaria Chart, by Patrick Manson, M.D., M.R.C.P., LL.D., physician, Seamen's Hospital, Greenwich. See British Medical Journal for December 1, 1894, p. 1252.

So far as concerns the figures of the malaria parasite given in the colored frontispiece, Manson lays no claim to originality. These are taken from the works of Laveran, Golgi, Marchiafava, Bignami, and Mannaberg; they were selected as being probably the best illustrations of the malaria parasite that we possess.

In the plate the various forms of the malaria organism have been to a certain extent classified, grouped, and graduated according to their appearances, not necessarily according to their assumed biological relationship. This has been done in such a way that a figure may be easily found corresponding very closely, in type if not in detail, to any parasitic form which may be encountered in blood under examination. Provision by letter and number is made for rapidly and accurately indicating this on the chart, and afterwards of reidentifying it in the plate. These letters and numbers, written in their appropriate place on the temperature chart, constitute the record.

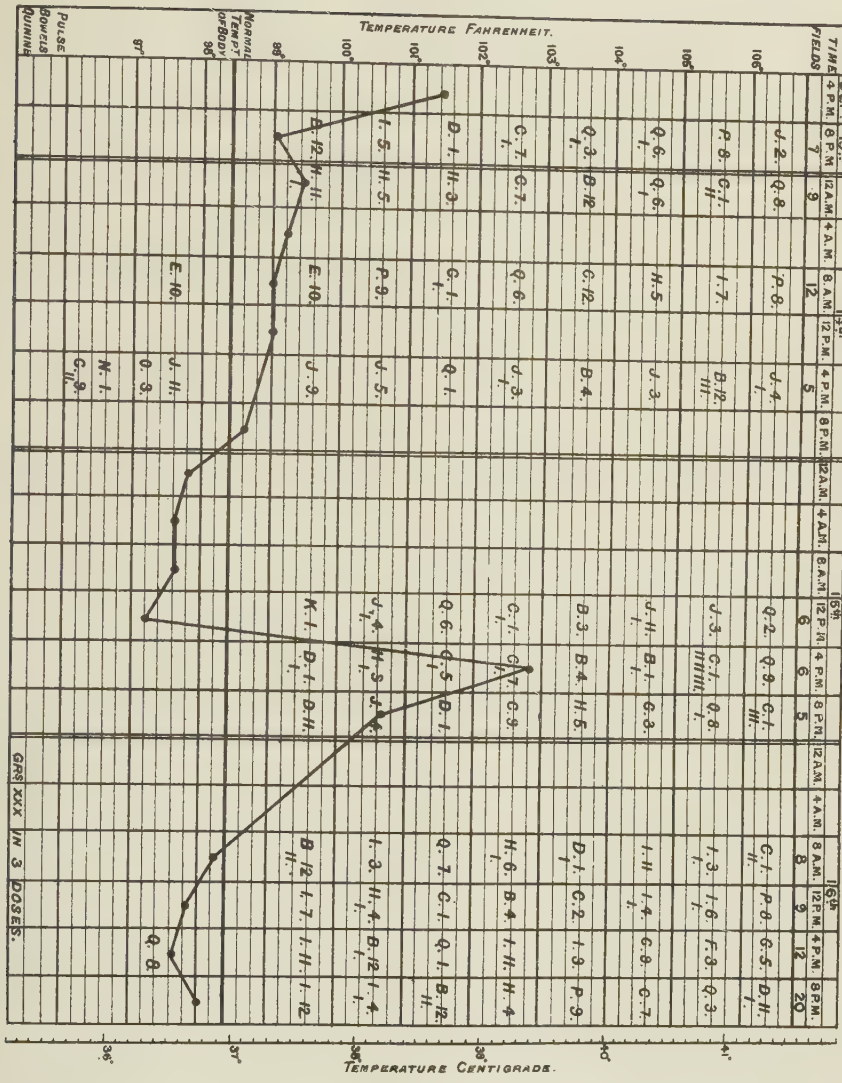
It may be objected to the plate that there is a useless multiplication of certain of the forms of the malaria organism. The compiler thinks, however, that in the present state of our knowledge about this parasite it would have been unwise to leave out unnecessarily, and at the risk of missing what may prove useful even in a small degree, one faithfully drawn figure. Should the observer, as is probable, desire to add to the number of figures, there are several unoccupied spaces which may be used for this purpose.

The figures are classified as follows: Columns A and B contain simple forms of unpigmented intracorpuscular bodies; columns C and D, the ringed forms of intracorpuscular bodies; E and F, principally the pigmented and larger forms of the latter; G and H, pigmented forms of the simple intracorpuscular bodies; I and J, larger forms of the latter, graduated according to size; K and L, intracorpuscular, segmented sporulating forms; M, the latter free and breaking up; N, O, P, Q include the crescent and flagellated forms and the bodies supposed to be connected with these, besides others which cannot be easily classified with the foregoing. The three figures at the foot of column B are somewhat diagrammatic representations of pigmented leucocytes; those at the bottom of D are extracorpuscular forms, the central one, D 11, representing the "swarming" corpuscle; those at the bottom of F represent, according to Laveran, dead forms. L 11, M 8, 9, and 10 represent free forms, perhaps in a degenerated condition; M 11 and 12 are free parasites; and O 11 and 12, degenerated forms.

It is not supposed that under ordinary conditions of practice the medical observer could afford the time to make microscopical examinations of the blood every four or six hours, but he may be able, at all events in hospital practice, to make a daily or occasional examination. Such a series of fragmentary and more or less irregular examinations need not be wasted if systematically recorded in the "malaria chart."

Registration of Malaria Organisms.—When a parasite or pigmented

CHART II.



Dr. Manson's combined Temperature and Malaria Chart in a case of Paludic Fever.

leucocyte is found, search in the colored plate for a corresponding form, and ascertain the letter and figure indicating the vertical and horizontal lines in which it occurs. Note these on the temperature chart (see Chart II.)—for example, A 1, or B 7, or G 3, etc., as the case may be—in the highest compartment of the column corresponding to the day and hour at which the examination is made. This done, search for a second parasite; a second being found, identify, and note it also, in the same way, in the second space of the same column; and so on until ten or more parasites have been found and recorded. It is important that every parasite found should be noted: there must be no selection of parasites, otherwise the proportion in which the different forms occur will not be accurately represented. A note of the number of fields examined should also be made in the space provided for the purpose at the head of the column.

It is recommended not to register more than fifteen or twenty consecutively-found parasites, as this number is sufficient to convey a fair idea of the proportions in which the prevailing forms occur. It is also recommended that that part of the column which is above the 98.4° line be devoted to the noting of these, space being saved by a tally mark of some sort below the registration of any form which is found two or more times. When an idea of the prevailing forms has been arrived at and the types noted, the observer may proceed to hunt for rarer forms; these might be registered in the spaces below the 98.4° line in the appropriate column.

Temperatures, etc., are to be recorded in the chart in the usual way.

In the absence of the special form of chart the ordinary temperature chart may be used for the registration of parasites.

The charts accompanying the plate are not divided into days, as is usual in temperature charts. This is left for the observer himself to do, so that he can adapt his charts to a four-, six-, or twelve-hour record, as may suit his purpose and convenience.

The object of registering the number of fields examined is to find out approximately the proportion of parasites to corpuscles. This implies that the observer has already ascertained the number of corpuscles which, in properly-prepared slides, an average field of his particular microscope contains, and that in looking for the malaria organism he selects average fields for observation.

Great amœboid activity of the parasites or other striking and unusual phenomena in connection with them can be indicated on the chart by appropriate signs.

THE INEBRIETY OF INSANITY FROM A MEDICO-LEGAL POINT OF VIEW.

BY T. D. CROTHERS, M.D.,
Superintendent Walnut Lodge Hospital, Hartford, Conn.

INSANITY is a general term used to designate disease of the brain, and includes a great variety of degenerative processes. Inebriety is one of these degenerations, and is often pre-eminent as an insanity, which it not only develops but often masks and conceals. Insanity is a full-developed, organized stage of dissolution. Inebriety is another phase of the same condition, only more obscure and complex. Both are interchangeable and alternating, and both follow fixed lines of degenerative march.

In a certain number of cases the inebriety conceals the real condition, as in general paralysis. Here the drinking habit will appear suddenly, and be explained and justified as a result of certain circumstances, first appearing in moderation, regularly every day, then in excess at night, at intervals, then finally to excess every day. Associated with this is intense egotism and general exhilaration. These cases are often taken to asylums where indulgence in the habit is prohibited, when advanced stages of general paralysis appear. The inebriety is a symptom and also an exciting cause. During this stage of spirit-drinking masked delirium of an elevated nature appears. Changes of conduct and character are common, as shown by the following cases:

A., a miserly, sordid man, began to drink and soon became very generous. He gave away a large amount of property in a strange, unreasoning way, and died suddenly, leaving a will that was contested.

B., after forty years of temperate, exemplary living as a quiet country lawyer, began to use spirits as a food, and warmly defended their value. Soon after he became involved in projects to sell counterfeit money, and later was arrested and sent to prison. When the spirits were withdrawn, general paralysis appeared, and he finally died in prison, the true nature of the case being unrecognized.

C., a manufacturer, a careful, prudent, business man, a total abstainer, of excellent reputation and a leader in the community, began at the death of his wife to use spirits daily. He defended his course rationally and frankly. Later he drank to stupor at night, became reckless in his business, associated with fast women, and committed bigamy. Finally, he was arrested as an accessory to murder by poisoning. General paralysis appeared, and he died in an insane hospital. Twice his family made legal efforts to have his

mental condition examined, but the medical testimony failed to recognize anything beyond his inebriety.

D., a mechanic, previously temperate, began to drink excessively every night. A year later he was arrested for forgery and assault, and two years afterwards he died of general paralysis, in prison.

These cases outline a class whose crimes are strange and unreasonable, persons whose previous character gave no indication of this ending. The use of spirits was strange and unusual, and the changes of conduct and character were overlooked. Delusions of strength and general exhilaration of the mind, with intense activity, frequently appear to the unthinking, not as disease, but rather as evidence of good health, while imprudent acts and altered conduct is considered transitory, and due to spirits alone.

Another class of these cases have more confusing symptoms. They usually begin the use of spirits after some illness, or shock, or injury, and drink excessively, developing delusions of persecution and neglect, with intense suspicions of those nearest to them. Suddenly crime is committed, or strange wills made, or dishonest papers executed. Then comes the question of mental soundness, and the fact of the free use of spirits is accepted as evidence of a voluntary, wilful state, which, legally, is supposed to increase the measure of responsibility. The altered character and conduct, and the unreasonable acts in question, are not studied from a physical side, and the man is placed in prison, perhaps under sentence of execution. Later, muscular tremors, delirium, depression or exaltation come on. If depression, it takes on a religious form, with confessions, repentance, and intense desire to repair the wrong, or to become a light-house of warning to others. Often the confessions are delirious, and consist of extravagant statements based on a few facts and untrue in detail. If the punishment is death, these statements are, in many cases, morbid exaggerations of their own acts and motives in the crimes. If exhilaration follows, bravado and doubts of the execution of the sentence are prominent. Then follow denials of the crime, with indifference and exalted confidence, and satisfaction in the power to overcome the present situation. Both of these states finally merge into paralysis, with dementia and death. If the death penalty follows early in the case, these extreme stages may not appear. If long imprisonment, the record of insanity and death in an insane asylum or prison hospital is common. After trial and sentence, these cases are lost to public interest, but confinement in prison reveals their true condition.

Another class of insanities is preceded by inebriety, and hence concealed and unknown. They are the various forms of progressive degeneration called "dementias." There is a slowly increasing failure of all the intellectual and moral faculties, a dulling and weakening of the mental and emotional activities. This is not idiocy or stupor, but profound or partial failure of the entire organism.

In many of these cases, inebriety is a prominent, early symptom, and crime, law-breaking, and wrongs are not infrequent. There are some dis-

tinct forms of dementia that are prominent in legal cases. One class, called senile dementia, is peculiar to old age or to exhaustion in middle life. The following are illustrative cases:

A., a merchant, who at fifty had acquired a fortune, was a model man in his community. Without explanation, he began to use large quantities of wine at night. Later he used stronger spirits, and, although not intoxicated, was constantly under the influence of alcohol. His habits and character changed, and a year later, as president of a bank, he was found guilty of forgery and malefeasance. The defence of inebriety was considered irrational, and two years later he died in prison of dementia.

B, a very exemplary clergyman, began to drink spirits to excess at sixty years of age. He became involved in a social scandal and forgery and was sent to prison for two years. Insanity was urged at the trial as the evident cause of the crime, but this defence was not recognized. Eight months later he died of exhaustion and dementia, in the prison hospital.

These cases are examples of a large class who begin to use spirits to excess in the middle or advanced periods of life. Finally they become involved in some crime, usually of an aggravated character, against property or person. After conviction and confinement the real condition appears.

Another class of these cases is observed in persons from twenty to forty years of age, who suddenly become inebriates, commit crime, and die of dementia. The dementia is due to heredity, or to the premature exhaustion of the brain and nervous system.

A. at twenty-five began to drink to excess, two years later was convicted of manslaughter, and died in prison a year after of dementia. He came from a degenerate family who all died in early life from various exhaustive diseases. He graduated at fifteen as a prize student, and was a brilliant lawyer of great promise at twenty. The inebriety at twenty-five was a symptom of premature age, exhaustion, and dementia.

B., after ten years of intense mental activity in business, became an inebriate and a criminal at the age of twenty-eight. He died in prison at twenty-nine, of dementia. In this case dementia and exhaustion were due to overwork, and inebriety and criminality were only symptoms.

C., at thirty-one years, began to drink and consort with low persons, and later was convicted of bold, unreasoning forgeries. He died in prison of consumption and dementia. In this case, a long period of excessive overwork and mental strain resulted in inebriety, criminality, and death.

In these cases, the decisions of the court were based entirely on the crime, and the fact of inebriety, associated with it, was regarded as an aggravation and evidence of wilfulness.

Many of these cases have marked symptoms of mental change, such as lack of former activity and precision, loss of pride, honor, and ambition; changes in manners and conduct, talk and expressions, these becoming either apathetic or excited. The usual progressive stages of dementia are hurried along in a confused medley of symptoms that become more com-

plex as the palsy from alcohol deepens. But the original cause is seldom concealed, and is always apparent on careful study.

A third class of cases come under legal notice where the inebriety is an initial symptom. They are the slow, progressive, systemized insanities, that after a long initial period develop into some particular form of mania, delirium, and delusion. They are termed insanities of involution, and are literally the progressive tearing down of the brain citadel, and breaking up of the processes of control and adjustment.

Many of these cases become inebriates, and after a variable drinking period abstain, and show symptoms of distinct forms of insanity. Some of these cases have been described as alcoholic insanity, while, in fact, the use of spirits was only a symptom, and not an active cause. The insanity, undoubtedly, comes from some fault of the organism, such as cell and brain starvation, exhaustion, and poisoning.

The derangement of functional activities is manifest in physical pain and suffering, and alcohol is a most fascinating narcotic. Later, the narcotism of spirits becomes painful and repelling and is given up, and the real condition appears. The use of spirits in these cases is not so impulsive or imperative as it is in paresis or dementia, and appears to be more under the control of the will. The pledge, the prayer, the threat, or short punishment in jail, has a deterring power, but only for short, variable intervals. Crimes and law-breaking are common, and seem to start from sudden, dominant ideas that seize and possess the mind to the exclusion of all other considerations. The various manias and phobias describe the dominant thought of the impulse which leads to crime. These mental states are awakened and roused to activity by the action of alcohol. A man, previous to drinking, may have had a thought of the possible unfaithfulness of his wife, or the dishonesty of his friends or associates, or the persecution and jealousy of others, or some special fear or possible disaster in the future from certain causes. Later, when he becomes an inebriate, these morbid thoughts, which were at the beginning hints of brain defects, but were controlled, now become fixed and settled convictions. In the sober moments they may be suppressed and concealed, but when spirits are used, they come into full activity.

Crime in these states may show deliberation, cunning, and premeditation, and even acute reasoning as to the effects and consequences of the act.

A., an inebriate, thirty-four years of age, whose inebriety was of four years' duration, set fire to a rival's store at a time and in circumstances that manifested shrewd cunning and calculation of the effects. Loss of life and of a large amount of property followed. The cunning of the act and his concealment of it were revealed when he became sober. He was sentenced for life, and a year after he became a chronic maniac with delusions of persecutions.

B., whose inebriety was of two years' duration, shot his father-in-law, without apparent motive, and with premeditation and studied reasoning to

conceal his personal identity. He was sentenced to be hung, and before the execution developed mania, and died in an insane asylum a year later. In both of these cases, the act was, no doubt, the development of a thought occurring previously, and restrained for the time ; finally, it became an obsession that dominated every other impulse.

Persons of this class convicted of crime have uncertain conceptions of both the act and the motive which impelled it. Confessions which are minute as to details and reasonings concerning the crime are unreliable, and should never be considered of value as testimony unless sustained by other and confirmatory facts. Delusional confessions and hysterical statements, implicating the prisoner and others, have often been accepted as evidence with great injustice to innocent persons. In a number of instances such confessions have been found to be false ; and inebriates of this class have accused themselves of crimes which they never committed, and have been punished by death in consequence. The same is true of all statements implicating others. When the anæsthetic action of alcohol has passed away, or the man becomes partially sober, a state of bewilderment follows, and his memory of the crime and its motives is hazy and uncertain. At this time, a newspaper account of the act, or the statement of his friends, or some zealous officer of the law, or reporter, may suggest a motive, or range of details of the crime which, after hearing once, he accepts as true without question. The brain in such cases is incapable of forming clear conceptions of acts, or realizing the purpose and motives that predominated.

All such cases should be placed under expert medical observation for a year or more, and no statements of the crime should be used against them, neither should personal confession be considered as evidence except in confirmation of other facts.

Strange, unusual wills, fraudulent contracts and papers, by persons who are recognized as inebriates, should be critically studied, considering first the author and then the act. The first inquiry should be of the onset and history of the drinking period, and the evident changes which have been observed during this time ; then going back to the history anterior to the use of spirits, including heredity, disease and injury, culture, nutrition, and growth. Every fact which has a bearing on the mental and physical health of the man must be noted by this inquiry. If this study is exhaustive the actual condition of the case will appear. The act and its motives, the conditions which preceded it, and the surroundings are all important facts from which to form a correct estimate of the man and the act. Most of these cases show a continuous chain of cause and effect, either from inheritance or disease, marked by changes of conduct and thought before spirits were used, and by decided deviations afterwards.

Where there is a history of sun-stroke or heat-stroke or of an injury causing unconsciousness or a severe fever with delirium appears before spirits are used, followed by inebriety and crime, there is a reasonable expectation of insanity. It may not be of a marked type, and may vary

from the forms described in the text-books, but it will have all the essential elements of insanity.

In a case of bigamy, where inebriety had come on suddenly, and irregularities of conduct followed, I found an extreme state of irritation and wild, strange anger, that was continuous for months before. He had been in jail three months awaiting trial, being deprived of spirits, and nearly all his waking hours were spent in passionate denunciations of others.

A clergyman of quiet, amiable disposition was treated under my care for inebriety, and recovered. Soon after, he displayed a most violent, unreasonable temper in little things, and committed assaults on his wife and family. This became very serious, but fortunately he died before any crime was committed.

Both of these cases were insane, and both manifested extreme changes of temper, that would have led up to crime with absolute certainty.

In another case under my care, the removal of spirits was followed by delusions of death from poisoning by his family. In no other particular did he show mental weakness. This delusion grew to a serious magnitude and became threatening. He made a will, ignoring his family; finally, he was treated with opium, and became an opium inebriate, and his delusion disappeared. His family relations were re-established, and he made a new will before his death, which occurred two years later. The insanity in this case took on the form of delusions, and would have ended in crime had not opium been given. In a similar case, a soldier, who had seen hard service in the late war, was treated in an asylum for inebriety of three years' duration. Soon after, he displayed a violent temper which became marked mania from the most trifling cause. He attempted injury on several occasions and was dangerous in his uncontrolled anger. By accident, he became an opium-taker and his mania subsided. He lived five years after this time, then died of exhaustion and dementia. Melancholy and noted physical depression, with delusions of health, and insane efforts to find some new medicine or means to restore health and perpetuate life, are symptoms in a certain number of cases.

The question in any case which comes into legal notice is the presence of insanity or inebriety. Is the inebriety only a symptom, and insanity the original cause; or is inebriety the cause and insanity the sequel or result? Whichever condition is prominent, alcohol has injured the brain, disturbed and lessened the sensory nerves, and palsied the centres of perception. The brain is enfeebled and unable to act normally because of false impressions, and imperfect power of control.

If the facts of the case indicate some previous change and failure of reason or conduct, and the inebriety is comparatively sudden, it may be considered as a symptom of deeper disturbances. If the inebriety appears after disease, or mental or physical shock, or states of extreme exhaustion, it is clearly a symptom. If inebriety comes on gradually, associated with exhilaration, or unusual depression, grave central brain degenerations are to

be expected. If the inebriety is marked by criminal thoughts and conduct foreign to his previous life, the higher brain centres are breaking down or destroyed. If the inebriety is of three or more years' duration, and has been prominent in frequent intoxications, the insanity is to be inferred, and the possibility of sanity and normal power of reason and control is a fiction unknown in theory or practical experience.

The history and character of the criminal act often give a clear conception of the degenerative brain that executed it. The faults of reasoning and exaggerations and underrating of the results and consequences of acts, with the reckless disregard of the interests of others, are clear evidence of brain failure.

The consideration and final adjustment of these cases and their acts should extend over a sufficiently long period of time to enable the court to be fully acquainted with all the facts at issue.

If, in a case of capital crime, the person should be under medical observation for a year or more, his real condition would appear. If the act of such person becomes a question, the same exhaustive study is essential to reach reasonably accurate conclusions.

HYPERPLASTIC PERSISTENT THYMUS IN EXOPHTHALMIC GOITRE.

BY DR. LUDWIG HEKTOEN,

Chicago, Illinois.

Exophthalmic goitre has an extensive and interesting literature, the strange clinical manifestations and intricate problems furnishing abundant material for case-reports, studies, reviews, and comprehensive monographs. Even a cursory review of this literature shows that the etiological theories change very radically as the knowledge of the disease and of the organs involved gradually increases. Thus, the early conception that anatomical changes in the central or sympathetic nervous system were the cause of exophthalmic goitre is now no longer in vogue, because it soon became evident that constant, well-defined changes were not found in parts of the nervous system where lesions might possibly cause the varying symptom-complex. Consequently the search for a special lesion in the nervous system has apparently been abandoned, and the many peculiar and erratic changes continually found in individual cases are regarded as secondary, complicating, or accidental conditions.

As it became evident that morbid anatomical changes in the nervous system could not solve the etiological problem, the constant presence of goitre in exophthalmic goitre became more significant. The demonstration that myxœdema may follow removal or disease of the thyroid,—its occasional

development in exophthalmic goitre,—that cretinism seems to depend upon aplasia or hypoplasia of the thyroid, showed strongly enough the importance of the normal and the capabilities of the diseased thyroid gland; and at the present time it seems to be the general opinion that exophthalmic goitre must be traced back to a chronic (at times acute) auto-intoxication with substances produced in a diseased thyroid. Maude,[1] in an interesting critical digest of the recent literature, shows the prevalence of the conviction that the complexus of symptoms is caused by some "toxin" from the thyroid which acts upon the vaso-motor centres in the medulla and others in its neighborhood especially, although it may affect even the peripheral nervous structures as well.[2]

It is quite evident that the complete solution of the question of the etiology of exophthalmic goitre along the lines of these recent theories involves many problems, and chief among them the fundamental one,—namely, the demonstration of the cause of the alleged primary changes in the thyroid gland, to say nothing about the isolation of the toxic substances and further experimentation with them.

In the mean time the changes found in the thyroid and occasionally in other so-called blood glands in exophthalmic goitre will merit study with renewed interest. Thus the hyperplasia of the persistent remnants of the thymus gland, which may perhaps be the case in a relatively large number of the cases of exophthalmic goitre examined *post mortem*, would certainly be an interesting and significant development in connection with the other phenomena of this mysterious disease. And the studies of Boyce and Beadles[3] have shown that the hypophysis cerebri may undergo enlargement in myxœdema and in association with changes in the thyroid gland, and although the observations bearing upon this phase of the subject are yet too few to allow any definite deductions, such observations are certainly very suggestive.

The following case is deemed worthy of publication,—first, as an example of fatal exhaustion from uncontrollable vomiting in exophthalmic goitre; secondly, as an additional instance of hyperplastic persistent thymus in this disease; and, thirdly, because the results of the microscopic study of the organs in general may not be altogether without interest even though no new light is thrown upon the cause.

CLINICAL HISTORY.

The following is an extract from the clinical record: Single woman, twenty years old, born in England, came under observation November 29, 1892. Her mother

[1] Brain, summer number, 1894.

[2] Putnam (Journal of Mental and Nervous Diseases, December, 1893), in an article on thyroidectomy in Graves's disease, discusses this question, and concludes that the "thyroidal cachexia" theory is not proved nor made probable by the facts now at command, but thinks that the thyroid becomes a "centre for the irritation of important nerves" after the irritation of the disease, whatever the cause may be.

[3] Report of Department of Pathology of University College, London, 1892–93.

died of "rheumatism of the heart;" one sister died of dropsy, and one of consumption. The mother had a goitre all her life, was nervous, but she never had prominent eyes. The patient has been in Chicago the last two years, and has worked hard at general housework. She began to menstruate at sixteen; the amount has always been very scanty: she would flow only one day or so every six or eight weeks, at which time she would have backache, pelvic colic, and headache. When nine years old she was ten months in bed with some complaint that was called rheumatism, and at this time the legs were much swollen, and also the chest and the stomach. Her personal habits are good.

The present illness has been coming on for about three years, and the first symptom was palpitation of the heart, which has been present during the entire period; at the same time she became more nervous, and during the last eighteen months a gradually-increasing goitre has been present; simultaneously the eyes have become more and more prominent. During the last year there has been considerable pain in the knees, shooting upward to the body; sometimes it has been difficult for her to stand and to walk. There are frequent headaches, occasional vomiting, with pain in the stomach and the sides. Feet become swollen after standing awhile.

Examination (Dr. Knapp).—The patient is well nourished; the complexion florid. She is very excitable and nervous. The eyes are very prominent, and there is drooping of the left lid; ocular motion and vision both good. The thyroid is uniformly enlarged. The heart is tumultuous, but there are no murmurs. The examination of the heart and of the lungs is negative. The tissue over the anterior aspect of the lower third of each leg is swollen, elastic, like myxœdema, and a little tender on pressure.

These symptoms and this condition continued practically without much change for some time. The pulse was seldom below one hundred; was usually 110 to 120. There were frequent spells of vomiting, and on December 17 the nurse notes that she cannot take the temperature on account of the constant vomiting, which continues unabated in spite of medication of all kinds; occasionally the vomitus is streaked with blood; withholding of food and drink has only temporary effect. On December 27 the pulse was above 130, and so continued for three or four days. Some emaciation was now very evident. After January 8, 1893, she retained absolutely nothing in the way of nourishment and stimulants, and the pulse became weaker and faster, the exhaustion more profound, until January 20, when death occurred. During the two last days there was some slight rise of temperature, which until then had been normal all the time.

POST-MORTEM EXAMINATION.

The section was made twenty-four hours after death.

Inspection: The body is five feet six inches long, and the estimated weight one hundred pounds. The rigor is faint, and there is no lividity. The emaciation is marked. Over the centre of the left leg anteriorly is an area of doughy swelling, in which the pitting caused by pressure soon disappears. On section the subcutaneous tissue appears of a light yellow color, and is infiltrated with a homogeneous, semi-solid, mucoid material (myxœdema?).

The peritoneum is smooth, empty, and shining, with a few adhesions about the gall-bladder. There are some adhesions in the right pleural cavity. (Condition of mediastinum described a little further on.) The pericardium is empty. There is a circular area of thickening in the epicardium over the anterior surface of the heart. This area is four centimetres in diameter, and at the periphery are a number of minute extravasations of blood. The heart contains a small amount of goose-fat clot. It weighs two hundred and thirty grammes. The endocardium is not thickened, and the myocardium is firm in consistence, of a brownish-red color. The coronaries are normal. The lungs weigh,—the right three hundred and sixty, the left

two hundred and seventy-five grammes. They are spongy and crepitant throughout; they contain very little blood. The trachea is compressed from side to side,

Fig. 1.

Trachea and thyroid, showing lateral compression of trachea by the encircling thyroid, which weighs 100 grammes.

and the cartilages feel soft. The spleen is small, firm, and red; it is anæmic. The kidneys weigh four hundred grammes together. The capsules are firmly adherent

Fig. 2.

Persistent enlarged thymus, posterior surface (natural size).

over some parts of the surface. The tissue is firm and moist, a clear reddish fluid exuding upon the section. The cortex is seven millimetres in thickness; the markings are indistinct. There is a diffuse tinge of yellow in the cortex. The mucous

membrane of the pelves shows a few minute ecchymoses. The uterus and ovaries appear small but healthy. In the liver the periphery of the lobules is quite yellow. This organ contains but little blood. The mucous membrane of the stomach does not show any gross changes; it is stained yellowish-red, and there are numerous small, superficial extravasations and areas of congested vessels. The small and large intestines are not changed. The pancreas appears normal. There are two nodular, calcareous masses as large as walnuts in the root of the mesentery corresponding to the lower end of the ileum. There is nothing unusual about the cranium. The dura is rather firmly adherent to the calvaria. The brain weighs eighteen hundred and ten grammes, and is normal throughout to the naked eye. The spinal canal and the spinal cord also appear normal. The markings on the transverse spinal sections are rather indistinct.

The thyroid encircles the trachea almost completely; it consists of two lateral concavo-convex masses united in front by means of a narrow isthmus. It weighs one hundred grammes, is firm in consistence, and uniformly fibrous on section. The trachea is compressed from side to side, and the cartilages feel softer than normal (Fig. 1).

In the interior mediastinum there was noticed at the beginning of the section a pinkish soft mass that reminded one of the thymus gland (Fig. 2). Careful dissection showed this mass to extend from the lower border of the thyroid to the middle of the pericardium. It is thicker above than below; at the thickest it measures six millimetres; after removal there is presented a mass, weighing sixty grammes; the measurements are six millimetres in greatest thickness, nine centimetres in vertical and six centimetres in horizontal diameter. It is soft, pinkish gray on section, and was only loosely connected with the surroundings.

The hypophysis cerebri fills the cella turcica completely; it seems normal to the naked eye. Unfortunately, it was not weighed.

The optic nerves, the eye-grounds, and the orbits are also normal, and the cervical sympathetic nerves and ganglia and the tenth nerve show no gross changes.

MICROSCOPIC EXAMINATION.

The pons and medulla, the spinal cord, the vagi as they run in the neck, the phrenic nerves, the cervical sympathetic ganglia and part of the nerves passing between them were hardened in Müller's fluid. Pieces of all the other organs, except the genital, the adrenals, and the large and small intestines, were hardened partly in Müller's fluid and partly in alcohol.

Unfortunately the spinal cord became mixed with other cords, and consequently the examination was omitted because of the doubtful identification.

Medulla and Tenth Nerve.—The medulla and a piece of one vagus nerve were kindly examined by Dr. A. Meyer, pathologist to Kankakee Insane Hospital, and the following is an extract from his report: The slides prepared with nuclear stains show nothing abnormal. Sections through the region of the vagus nucleus, prepared according to methods of Weigert and Pal, and in some instances also treated with carmine, do not show any lesions. A somewhat peculiar focus in the ascending root of the fifth nerve is similar to what can be found in any series of sections through the normal human medulla. The preparations of the tenth nerve (Pal) do not show anything certainly pathologic; it is likeliest that the partial staining observed is merely accidental, due to some irregularity in the preservation. Unfortunately there are no normal nerves from the same body at hand for comparison as regards the quantity of myeline in the vagus; at any rate, there are no abnormalities in the hæmatoxylin preparations. The latter is also true of specimens prepared by the writer by various methods, and applies to the phrenics as well. Personal examination of Dr. Meyer's specimens leads to the same conclusions as his. There are no changes in the restiform bodies.

Cervical Sympathetic Ganglia.—In sections stained with methyl blue and with eosin and hæmatoxylin, the protoplasm seems somewhat shrunken, so that there is usually a narrow space between the cell-body and the connective-tissue capsule; the cells seem of normal size, the nuclei stain distinctly and seem large, and many of the cells contain rather coarse granules of yellowish or unstained and colorless, amorphous, but sometimes glistening, pigment, which is often found at one pole of the cell; sometimes the pigment masses seem to occupy as much as one-half of the ganglion cell's body. The other parts of the ganglia do not appear to present any abnormalities whatsoever.

Kidneys.—The cells lining the tubules in the labyrinthine part of the cortex are in general granular and fatty, so that the outlines are indistinct and the nuclei frequently not demonstrable; in some places the tubular lumen is filled with a granular and fatty detritus, in other places it is nearly or quite empty, and again in others it is collapsed. The walls of the tubules do not appear to be much thickened except in very occasional instances, and there is no intertubular cell infiltration. The blood-vessels occasionally have thickened walls; they are usually filled with blood, and there are also a few small hemorrhagic foci in the cortex. There are no marked changes in the glomeruli; the capsule appears thickened in some of them, and the capillary tuft larger than normal. Finally, there are scattered islands of sclerotic tissue in which the glomeruli are replaced by concentric nodules of hyaline material.

Liver.—There is marked fatty infiltration in the periphery of the lobules which gradually disappears in the direction of the centres.

Stomach.—In the mucous coat all cellular structure is lost, and upon the muscularis mucosæ is found a granular layer in which are some nuclei; but there is no indication of any distinct tubular arrangement in any of the sections which came from the greater curvature towards the cardiac end. Presumably this destruction of the mucous membrane occurred *post mortem*. The other coats appear normal.

Heart and Lungs.—No changes were found, but the examination was not extensive.

Hypophysis.—The appearances do not in any respect deviate from those of sections from the pituitary bodies of persons of about the same age that died from other causes than exophthalmic goitre, and the sections from this case might well have served for the purpose of preparing the drawings found in text-books of normal histology. The majority of the tubules are closed, and the intertubular connective tissue is very vascular indeed.

Thyroid Gland.—The stroma has increased in greater proportion than the glandular part, although it is evident that, in view of the size of the gland and in view of the amount of gland parenchyma, the latter must also have undergone proliferation. The stroma is richly cellular, and its appearance much like that of granulation tissue of some standing; the vessels are not abnormally large or numerous, and the sections in some places seem even less vascular than usual.

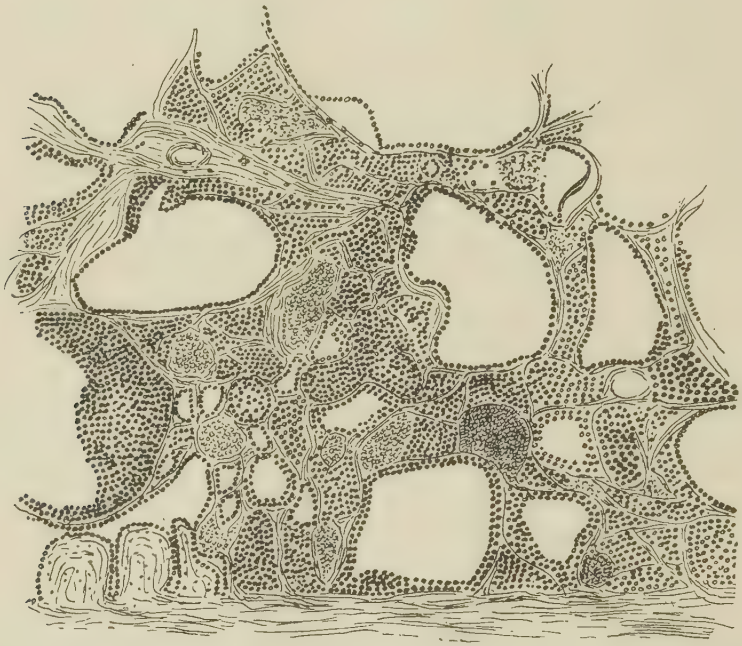
The tubules vary in size and in shape. In most instances the cell-lining is well preserved, the cells being rather granular and the nuclei perhaps somewhat indistinct. In shape the cells are usually more oval than cuboidal. There are no cylindrical cells present. In many tubules the cell-lining is composed of more than one layer, but without any regular arrangement in superimposed layers, the lining at one place containing more cells in layers than at others. The tubular lumen is of varying size, frequently distinctly enlarged, quite often fusiform or saccular in shape, and, as a rule, empty (Van Gieson's hæmatoxylin and acid fuchsin method), only a very few follicles containing any colloid material. The cells in the masses and nests produced by cutting the tubules in a tangential direction do not differ in any essential from those lining transversely cut tubules.

Some atrophic tubules are undoubtedly present, because in some (though few) the cells are not so large as usual, but short and indistinct in outline and occasionally

simply a granular protoplasmic ring lines the tubular lumen. Then there are found small groups of irregular cells, or remnants of cells, that impress one as the final stages of tubules in the process of obliteration; there is, however, no marked condensation or fibrous thickening in the tissue about these remains, neither are there any concentric nodules of fibrous tissue observed in the sections.

Thymus (Fig. 3).—The sections present the same appearance as that of an active thymus of a very young person. The division into lobular spaces by means of a delicately fibrillated connective tissue seems well marked; the spaces thus provided

Fig. 3.



Section from thymus, showing lobules partly or wholly filled with small round cells with deeply stained nuclei. The vessels are filled with blood, as a rule. Camera lucida drawing of section hardened in Müller's fluid and stained in gentian violet.

are usually quite well filled with round, deeply-stained cells, the central part being frequently empty; but from the irregular distribution of the cells along the periphery of the partly-filled spaces, it would seem that perhaps many cells had fallen out during the process of preparation. In the smaller lobules the cells are usually present side by side throughout their whole extent. In some places the amount of interlobular tissue is so slight that it seems as though a diffuse infiltration of cells had taken place; but usually a lobular arrangement can be demonstrated. The vessels are numerous and filled with blood.

The lymphoid cells in the lobules are noteworthy on account of their round, large, deeply-stained nuclei, whose richness in chromatin is shown by their affinity for the nuclear stains. Karyomitotic figures were not obtained, and most likely this was due to post-mortem changes. There is no intercellular substance demonstrable.

It is, finally, also worthy of note that not a single concentric Hassal's body was found.

There were no inflammatory changes in the interstitial tissue, which consists of fibrillated fibrous tissue without any development of fat (except at the very periphery of the organ).

In sections stained with the Van Gieson method (hæmatoxylin and acid fuchsin) for the purpose of showing the absence or presence of any peculiar colloid-like substance, no additional features were developed other than have been described.

This case is marked by several peculiar features. Among these may be mentioned the continuous, exhaustive vomiting; the changes found in the gastric mucous membrane are such as may be due to post-mortem softening, and most likely the vomiting did not depend on local conditions in the stomach. How far the kidney changes were responsible for the vomiting, if at all, remains, of course, a matter of conjecture. The likeliest explanation would seem to be that the vomiting depended on an involvement of certain parts of the nervous system in connection with the many other nervous disturbances, all being due to a common though unknown cause. Under all circumstances fatal exhaustion due to uncontrollable vomiting in exophthalmic goitre belongs to the unusual and remarkable.

The presence of a doubtful myxœdematous area in the subcutaneous tissue over the anterior surface of the left leg recalls the occasional development of myxœdema in exophthalmic goitre,[1] which must be looked upon as very strong evidence of the serious changes in the structure and function of the thyroid in this disease.

There now remains to consider very briefly the changes in the thyroid and then the enlarged thymus.

As would be expected, the strumous changes in exophthalmic goitre are not such in kind as to allow any deduction as to their cause; nor do they present constant peculiarities that would stamp them as specific and characteristic lesions, found only in this disease. Nevertheless there seem to be no very great variations in the results obtained by the recent writers who have studied the thyroid, and among them may be mentioned Joffroy and Achard,[2] who in five cases found the essential lesion to be dilatation of the vesicles in one, disappearance of the colloid material and proliferation of the epithelial lining in three, and typical adenoma with fibroid changes in the trabeculæ in one. Hezel[3] found proliferation of the cells in many vesicles, the cells changing from cubical to columnar in shape. Greenfield[4] describes essentially the same changes, which he terms catarrhal proliferation, and finds also disappearance of the colloid material. Reymond[5] also describes hyperplastic changes in the gland follicles, and Müller[6] finds similar changes in four cases. Buxhan in his laureate monograph[7] summarizes the anatomic changes in the thyroid in the following words: The changes

[1] Maude, loc. cit.
[2] Arch. de méd. exp. et d'anat. path., No. 6, November, 1893.
[3] Deutsche Zeitschrift für Nervenheilkunde, iv. 353.
[4] Bradshaw Lectures, 1894.
[5] Bull. de la Soc. Anatomique de Paris.
[6] Deutsche Arch. f. klin. Med., 1893, p. 335.
[7] Die Basedow'sche Krankheit, 1894.

vary from simple hyperplasia and dilatation to colloid and cystic degeneration with induration. Grainger Stewart and Gibson[1] mention three cases, in all of which the changes were identical, "consisting of glandular hyperplasia with catarrhal[2] changes in some of the acini, which were more numerous and smaller than usual and were separated by a delicate connective-tissue stroma. The colloid material had almost entirely disappeared, and there was an interstitial change attended with much cellular proliferation spreading inward from the capsule."

In our case the thyroid was much enlarged, weighing one hundred grammes, and this was due to hyperplastic changes in both the interstitial and the glandular tissue, the former predominating considerably, and in some places the gland follicles seemed atrophic. Proliferation of the epithelial lining of the follicles was marked, the cells being round rather than cuboidal; colloid material was absent from the majority of the follicles, many of which were slightly dilated.

From this brief consideration it appears that the changes commonly observed in the thyroid in exophthalmic goitre are: Proliferation of the follicular lining, disappearance of the colloid material, and interstitial hyperplasia. Manifestly such changes may in their progression result in appearances which might vary greatly from those of earlier stages.

The presence in our case of an enlarged persistent thymus[3] recalls the comparative frequency of thymic hyperplasia in exophthalmic goitre. The following instances of persistent thymus in exophthalmic goitre are probably all of such cases to be found in readily accessible sources:

Mosler[4] found the thymus considerably enlarged, and in a state of simple hyperplasia, in a twenty-year-old woman who died from pneumonia during exophthalmic goitre.

Lasvenes[5] found remnants of the thymus in a sixty-three-year-old man.

Johnstone[6] describes a large thymus from a thirty-two-year-old woman; it measured $3\frac{1}{2}$ x $1\frac{1}{2}$ x $1\frac{1}{2}$ inches, was triangular, and reached from the lower border of the thyroid to the large vessels.

Spencer[7] found a "remarkably large thymus" in a twenty-year-old woman; it was adherent to the thyroid and as large as the head of the pancreas.

White[8] found the thymus present in a woman thirty-one years old, and also[9] a four-inch long thymus in a woman twenty-one years old.

---

[1] British Medical Journal, 1893, ii.

[2] This use of "catarrhal" (Greenfield, Maude, loc. cit.) is certainly new.

[3] According to Waldeyer the thymus always persists in the form of very minute remnants, hence the term hyperplastic or enlarged persistent thymus would seem to quite correctly describe the conditions in most of the cases referred to.

[4] Krankengeschichten, 2 Folge, Greifswald, 1889.

[5] Thèse de Paris, 1891.

[6] Journal of Mental Science, 1884, p. 521.

[7] Trans. Lond. Path. Soc., 1891.

[8] British Med. Journal, 1880.

[9] Ibid., 1886.

Mœbius[1] found distinct remnants in a fifty-one-year-old woman.

Reymond[2] describes a case of acute (fourteen days), fatal exophthalmic goitre in a forty-five-year-old woman, in whom the thymus was present.

Koppen[3] mentions that he found "a very large thymus" in a woman twenty-three years old, with osteomalacia and exophthalmic goitre.

Buschan[4] mentions that Clarke[5] and Hilton Fagge[6] describe similar cases, but the original descriptions have not been reached.

Marie[7] has had six cases of exophthalmic goitre with persistent thymus.

On account of the indefinite descriptions of some of these cases it is impossible to say whether all are instances of real enlargement of the persistent thymus remnants or not. Perhaps some are simply the retrosternal fat body that Waldeyer,[8] Orth,[9] and others show may maintain the form of the thymus after the thymic tissue proper has undergone the nearly complete physiologic, lipomatous atrophy, but in the majority the conditions described point to a real hyperplasia of the thymic remnants.

As regards the thymus in our case, it can be said that its size, weight, and especially its histologic structure point to a hyperplastic organ in active performance of its functions, because its cells are all rich in chromatin, there is no fat in the fibrous tissue between the lobules, and there are no concentric Hassal's bodies present which appear when the physiologic metamorphosis into fat commences.

The majority of the writers above mentioned content themselves with simply referring to the presence of a thymus, but Marie[10] regards this condition as a "vicarious" redevelopment from the involutionary atrophy in which it exists in adults, and speaks of the "revivescence" of the thymus not only in Basedow's disease, but also in acromegaly and in myxœdematous idiocy. In the latter condition Bourneville found the thymus enlarged. In acromegaly Marie[11] himself describes persistence of the thymus as one of the principal changes.[12]

There is no anatomic reason against this idea of Marie that the thymus may undergo a vicarious hyperplasia in diseases in the thyroid and in the

---

[1] Quoted in Schmidt's Jahrbücher, B. 193, p. 25.

[2] Bull. de Soc. anat. de Paris, sér. 5, vol. vii., No. 18.

[3] Neurolog. Centralblatt, 1892, No. 19.

[4] Basedow'sche Krankheit, 1894.

[5] Bristol Med. Journal, 1887, No. 15.

[6] Medicine, i. 1012.

[7] Gazette des hôpitaux, February 21, 1893.

[8] Sitzungsbericht der K. Preus. Acad. d. Wissensch. zu Berlin, xxiii.–xxv. 933.

[9] Lehrbuch der path. Anat., 1887, p. 88.

[10] Loc. cit. See also discussion of Johnsen's paper on exophthalmic goitre in Trans. Ill. State Med. Society, 1893.

[11] Virchow and Hirsch, Jahresbericht, etc., 1889, ii. 133.

[12] Squance, British Med. Journal, 1893, No. 1714, p. 993, details a case of acromegaly with persistent thymus and hypertrophy of the left lobe, the weight being one ounce, the color pink, and the consistence pulpy.

hypophysis, because the thymus does not completely atrophy, but, as shown by Waldeyer,[1] small islands of thymic tissue persist in the retrosternal fat body mentioned as replacing the gland, from which the thymus could again develop under certain conditions.

In conclusion it may be said, although exact figures are not at hand, yet the statement will probably not be doubted, that as compared with the total from all sources the number of instances of hyperplastic persistent thymus in exophthalmic goitre is proportionately larger than can be explained without assuming some closer relation between the disease and the enlarged thymus than an accidental coincidence.

OPERATIVE TREATMENT OF PROSTATIC OBSTRUCTION.

BY LEWIS L. McARTHUR, M.D.,

Chicago, Illinois.

DEFINING prostatic obstruction as the dysuria incident to narrowing of the urethra from changes in the shape, size, or structure of the prostate (whether from senile sclerosis, inflammation, or neoplasms), and emphasizing the fact that this paper deals solely with the above condition when the symptoms have failed of relief by purely medical and local remedies, let us see what procedures still offer substantial hope of aid.

Thirty-three per cent. of all men past middle life possess hypertrophied prostates; of that number one-half experience no trouble; the remainder have some urinary difficulty; and of these ten per cent. have some pathological lesion. (American Text-Book.) In atony of the bladder, which ensues in a fair proportion of prostatics, removal of the prostatic enlargement will not cure the case; the pressure on the urethra may be from enlargement of any one or all of the prostatic lobes, and when from the middle alone or from the annular thickening of Brodie at the internal meatus, it cannot be felt per anum. When due to neoplasms, it cannot always be determined by a rectal examination.

At various times, by different authors, the following plans of treatment have been more or less strongly advocated: 1, electrolysis; 2, cauterization (actual or galvanic); 3, castration; 4, prostatectomy (partial or complete); 5, drainage (perineal or suprapubic); 6, ligation of the vas deferens and interference with the blood supply.

We will dismiss at once as unscientific electrolysis of the prostate, either as recommended by Caspar, of Berlin, Nélaton, or Althaus, who introduces the platinum needle through the rectal wall directly into the lobes of the gland, and, using a large external electrode with from ten to twenty-five

[1] Loc. cit.

milliampères for five minutes, partially withdraws the point, then, inserting it in another direction, repeats the procedure for a similar length of time. The latter gives four cases with no cures, one recto-vesical fistula, one improvement, one unimproved. Newman and Bottini recommend the intra-urethral use of the galvano-cautery. This is pushed down until prostatic resistance is felt, when the current is turned on and the obstruction burned away. Belfield, in a similar manner, operates through a perineal wound.

The suggestion to remove the testicles for the purpose of producing an atrophy in the prostate similar to that induced by a removal of the ovaries has not, for various reasons, been well received, though such atrophy has been observed. Harrison has recommended drainage through the perineum, by puncture with a trocar plunged directly through the perineum, one-half inch in front of the anal orifice, and the introduction of a permanent drainage through the same canula. It remains for us to decide, then, between prostatectomy and drainage.

Whatever operative procedure we institute, it should be with the object of affording the greatest relief with the least risk to life. A better illustration of the influence of years of habit, based on good clinical experience, could not be afforded than the fact that the older surgical minds still cling to the perineal route in preference to the suprapubic. For the past two centuries (prior to antiseptic days) rude experience had taught the genito-urinary surgeon that best results were obtained through a perineal route, and that surgical interference by any other was to be dearly paid for. With the new conditions obtaining, because of a more accurate knowledge of the causes of wound inflammation, of better methods of avoiding the same, and of better technique, we still feel so strongly the influence of this older teaching that many refuse to yield to new proofs, daily accumulating, that former experiences do not of necessity repeat themselves when former conditions no longer obtain. To illustrate the trend of opinion of our representative American surgeons, G. Wylie Broome, of St. Louis, in an excellent monograph on this subject, in which he urges the permanent suprapubic drainage, quotes from the American Text-Book,—viz., "The results of experience thus far seem to show that the operation of prostatectomy is justifiable in most cases of hypertrophied prostate in which catheterism is difficult, or impossible, or excessively painful, and in which a high grade of cystitis has developed, and septicæmia or uræmia is imminent. The prognosis is unfavorable in proportion to the duration of the obstructive symptoms and the size of the mass which it is necessary to remove to secure patency of the urethra, and is of course much influenced by the condition of the kidneys."

Now, while this quotation does serve to illustrate the sentiment of this group of eminent surgeons, to which both he and I take exception, his next statement is incorrect, and worthy here of correction. He says, "No other treatment is recommended than that of prostatectomy, save that of systematic catheterism, and that only as long as it can be endured by the

patient." For on the same leaf from which he quotes is the following: "Treatment may still continue to be palliative, and may consist in opening the bladder through the perineum, by means of the operation for median lithotomy. . . . Occasionally it will seem wise to make drainage by means of a suprapubic puncture. Hunter McGuire has shown that it is possible to do this by establishing a small permanent fistulous opening running obliquely upward, and to retain considerable power over the urine. The suprapubic incision has the advantage also of permitting, better than the perineal, the thorough exploration of the bladder and prostate, and, if necessary, the employment of more radical measures."

While thus "damning with faint praise" the very method which Broome so ably presents in his brochure, and which operation I am here to advocate, it is not fitting to misquote them.

I have for over six years been in the habit of urging the more frequent use of the suprapubic incision for the treatment of the various vesical troubles to which it is so admirably adapted, and to-day I am still more convinced that this plan, above all others, offers the safest, easiest, and most rational means of relieving the victim of prostatic obstruction, while at the same time serving to clear up, as can in no other way be accomplished, the exact pathology and indications in the given case.

What are the indications in the given case? To give prompt, safe, and permanent rest to an inflamed bladder. How may it be accomplished? In one of two ways,—either by removing the obstruction, or in some way getting round it. When the lumen of the œsophagus becomes so obstructed with a growth that the danger of its removal is out of all proportion to that of making a gastric fistula in two stages, the choice of a gastrostomy is unanimously made; when a narrowing of the intestine occurs, to remove which would expose the patient to peril for his life, we choose an artificial anus; when in the larynx, a tracheotomy; in the pylorus, a gastro-enterostomy; and then later, if indicated, we are in better condition to institute more radical measures; yet when it comes to the bladder, we are told that so sensible a rule is not to be observed.

Again, recall for a moment the conditions obtaining, the very ones so strongly urged against suprapubic cystotomy,—namely, an old man with atheromatous arteries, exhausted from loss of sleep, with putrid, offensive urine, and possible pyelonephritis, and you are asked candidly, is there not vastly more danger to the patient in combining the technique of two operations—median lithotomy with prostatectomy or suprapubic cystotomy with removal of the prostate, in whole or in part, and subsequent suture of bladder—than there is in the simple opening of the bladder wall (in two steps if deemed necessary)? Recall the torn, unprotected tissues, bathed with ammoniacal urine, in a position where they cannot be seen or cared for, and the painful urination; then imagine a simple incision down to the bladder wall, this incision then packed with iodoform gauze for forty-eight hours, after Volkmann's two-step opening of an abdominal abscess, or

gall-bladder, or stomach; later, a simple puncture with a trocar, and the introduction of a tube of the same size. Here the cellular tissue has been shut off, there is perfect rest to the bladder, no chance for infection, no peritonitis possible; no pain (cocaine being amply sufficient for the second step). Which one of you but will say that the simple incision is the safer?

We said that the two factors in the indications are (1) safety and (2) complete rest. As to the latter, is it not equally apparent that the patient with the simple incised wound and siphon drainage will have more perfect rest than he who has had the neck and base of his bladder torn, scraped, gouged, or burned away, yet still has to use it in micturition? I think Kocher, in his operative surgery, explains why the low operation is preferred. He says, "that the incision from below has been practised so long is explained by the fact that the infection of the wound in the high operation could not be prevented."

I heartily agree with Broome, that "even were it possible by the suprapubic procedure to remove a portion of the projecting prostate sufficient to secure a low, level channel and perfect drainage of the floor of the bladder through the urethra, as advocated by McGill (and others), I, notwithstanding, believe the procedure wholly unjustifiable and inhuman, if there be the highly irritable condition that follows cystitis, or prolonged catheterism, and other like causes. . . . I wish to state, in this connection, that if a prostatectomy could ever seem to be justifiable, certainly the urethral route could hardly ever become popular."

Again, the teachings of Guyon and Launois, that the prostatic hypertrophy of later life is an accompaniment of a general senile arterio-sclerosis, has been proved to be only partly true, for Caspar, of Berlin, has shown by dead-house dissections that this association is only accidental. For example, in twenty-four out of twenty-eight old men examined, the prostates were enlarged and the aortas atheromatous, but only in two was there a general senile sclerosis of the urinary organs. Harrison's theory as to the hypertrophy seems to be borne out by the sequelæ of the high drainage, for that organ most often undergoes an atrophy which later permits the use of the normal channel again, as more than one can testify. For obvious reasons, then, I am convinced that whether it be by the methods of Mercier, Tobin, Treves, Bottini, Harrison, Dittel, Belfield, or Dolbeau, the attempt to remove as a primary operation the obstruction itself is both unsafe, unscientific, and many times unsuccessful. In other similar procedures we prepare the field of operation, and why not in this?

At the meeting of the Association of American Surgeons in 1887, Dr. J. H. Packard showed both by the history and from an anatomical standpoint that suprapubic cystotomy had been regarded with undue disfavor and neglect. In 1888, when their proceedings had been published, Sir Henry Thompson, who had been one of the earliest to advocate the operation, took pains to write to Dr. Packard, in order to correct any misappre-

hension as to his position. He said, "You have quite overlooked what has been appearing in my work and elsewhere concerning the prostate,—namely, that for nearly twenty years I have been advising and performing incision above the prostate, in cases in which prostatic patients found catheterism difficult, so as to provide a permanent drainage there. My first case was performed in University College Hospital, May 12, 1869. . . . Of late years I have considerably improved the method, and, were you now here, could show you a man in rude health, going about as usual, passing all urine into a receptacle, and but little inconvenienced." Sir Henry Thompson thought himself to be the first to make the suprapubic drainage, but Parrish quotes Wistar as having done it admirably before 1818. As further illustrating the change which Sir Henry Thompson's opinion has undergone—as I am sure will that of every one who performs cystotomies for this purpose—Packard quotes him (1883) as saying, "This operation has always been advantageous in a certain degree; . . . but the boutonnière of the French bids fair to be on the whole more valuable and more generally available." In 1886—note the change—he says, "Petersen's rectal distention has rendered an operation, formerly associated with some risk, almost absolutely safe as regards the peritoneum. . . . There is no risk of hemorrhage at all. . . . It is a very simple procedure, and easy of performance; much more so than median lithotomy."

The technique of this simple operation is to be found in all the more recent works on vesical surgery, and it only remains to recall some of the special points:

1. After irrigation with the antiseptic solution until it returns clear, distend without rupturing the bladder, with the antiseptic solution, and constrict the penis.

2. Put the rectal bag in place and gently distend with water.

3. In all the dissection, cut without tearing.

4. Gently separate the recti and pyramidalis with a few cuts; cut slowly through the presenting fascia transversalis with its fat, after pushing upward that at the upper angle.

5. Avoid the few prominent veins presenting.

6. When the muscular wall of the bladder is reached and the case is septic, pack the wound with gauze for twenty-four or forty-eight hours, at the point where you desire to puncture.

7. Cocaine, a four-per-cent. solution, will suffice for this operation. (I have done the entire operation, with removal of an immense stone, in a weak old man with chronic nephritis, using one per cent. freely.)

8. Drainage-tubes of various kinds are recommended. I have found the one sold at the instrument-makers as Andrews's empyema tube to answer the purpose. This is connected with a bottle under the bed by a siphon of rubber tubing and a piece of glass tubing bent at right angles, and fitting into the lumen of the drain. By this means the wound remains absolutely dry, and the bladder can be irrigated as often as desired.

9. The nature of a siphon and its method of working should be made clear to the attendants, so that they can see that it is working, and not obstructed with slime or clots. The long tube should be occasionally sterilized, and its end rest in a bottle which has some antiseptic solution in it.

10. Broome's suggestion to use a trocar for making the perforation in the bladder-wall, and to insert a tube of the same dimensions, is very good, because it prevents all leakage, and when a siphonage is employed, insures the good action of the latter by preventing the aspiration of air into the bladder, which is likely to occur if the drain fits the wound loosely.

MENTAL INFLUENCE IN THE TREATMENT OF DISEASE.[1]

BY THEODORE DILLER, M.D.,

Visiting Physician to St. Francis's Hospital, Pittsburg.

It can be assumed, I think, at the outset that all here will concede the proposition that mental, moral, and religious influences affect all people in various degrees, either harmfully or beneficially. The subject is a vast one, and includes and is, indeed, almost identical with the ancient one of "mind and body." I hope to develop only one thought in connection with it. I wish to enter a plea for a more careful study of the baneful mental influences and of those which are beneficial. Let us first consider some of the pernicious mental influences at work. Psychical epidemics break out from time to time and may be vastly more harmful to the communities in which they rage than epidemics of physical disease. In the latter case quarantine is probably established; the health officer takes charge; intelligent and active measures are taken to prevent the spread of the epidemic; and physicians are called upon to treat individual cases. This is not true of psychical epidemics. Faith-healers, spiritualists, clairvoyants, Christian scientists, public hypnotic exhibitors, and paranoic religious leaders set up their standards and preach their doctrines in various communities, and always gain some followers, always do some harm. Those who are mentally unstable—*e.g.*, the hysterical—receive these doctrines and are influenced often to a marvellous degree by them. As long as the propagators keep within certain limits prescribed by the law, they are undisturbed, and within these limits vast and incalculable harm can and has been done.

What can be done? To suggest a remedy which will wholly protect the psychically weak or deformed from becoming the prey of all these forms of psychological quackery and charlatanism does not seem possible.

---

[1] Paper read at the forty-fifth annual meeting of the Medical Society of the State of Pennsylvania, held at Chambersburg, May 21, 22, and 23, 1895.

But I believe that if it could be made unlawful for any one, other than a registered physician, to practise or attempt to practise hypnosis or to make a business of curing persons by mind cure, Christian science, and the like, very much would be gained. But it seems to me that before much can be done in the way of getting laws to prevent and check these psychological epidemics, some of which are present in a chronic form in our large cities, it is essential that physicians should have a better understanding of morbid psychology. It should be studied as carefully as morbid anatomy; we should at least attempt to grasp certain fundamental underlying truths in connection with it. Then can we better hope to establish some sort of public mental hygiene. It cannot be gainsaid that often apparently marvellous cures are effected by unauthorized persons practising hypnotism, faith cure, mind cure, and the like. Indeed, for my own part, I believe that a certain number of these cures are real and lasting and that some of them could not have been effected by the ordinary physician. One has only to examine into the literature to find unmistakable evidence in support of this proposition. In a paper read before this society in 1893 I cited a number of such instances.[1] Why, then, attempt to restrain these so-called healers? Just because the number harmed by those operating these cure systems is infinitely larger than those benefited, because it is not possible to exert the undoubted force for good which, to a greater or less extent, exists in all these systems, in an intelligent and discriminating manner in the way employed. To illustrate: suppose a sufferer from functional headache and one from hysterical hemiplegia were to submit themselves with the strong desire for and firm expectation of a cure[2] to a Christian scientist; suppose that, in a like frame of mind, a sufferer from empyema and another from cancer of the stomach were to present themselves. The symptoms in all four cases might be caused to disappear; but it is very certain that the diseased process in the last two cases, sapping away life, would not have disappeared, nor could we imagine how the symptoms would long remain absent. But in the first two instances the symptoms after disappearing might never return. Now place these four cases in the hands of the competent physician. The strong and confident hope of a cure, or hypnotic suggestion, might accomplish the same end. In the second two cases, the most advisable medical and surgical treatment would be instituted. If the diseases progressed in spite of this, the physician might do much to aid the patients by fostering in them that mental attitude which would render them best fitted to bear their burdens.

In the chronic, incurable diseases much can be done by efforts at promoting mental comfort, when little or nothing can be done by medicines. I suppose every one here has witnessed the peace and quietude which come

---

[1] Hypnotism and Suggestion. Transactions of the Med. Soc. of Penna., 1893. Also University Med. Mag.

[2] Op. cit.

through the Christian religion to certain chronic sufferers. It is entirely reasonable, and should be much more frequently seen than it is. Often laymen ask me the question, "Doctor, do you believe in Christian science?" I always answer "yes," taking care to explain what I mean by this: that the Christian spirit may lift a diseased person in some measure out of his physical pain or place him in an attitude better able to bear it; but that the ordinary means known to scientific medicine must always be used. This sort of Christian science I believe we can all advocate. It is the kernel of truth in the so-called system which goes by that name, the sophistries of which were clearly exposed in the admirable paper recently published by Dr. H. H. Longsdorf.[1] I believe that in the attitude I have indicated we have, in some measure, the answer to the question, "How are we to be armed against its inroads?" which Dr. Longsdorf asks in speaking of this pseudo-Christian science. Individual physicians can do much in individual cases in the way of restoring healthful mental action by showing the truth and dangers lying in faith cures. It would seem that the quack or charlatan often understands the subject of mental influences better than some honest members of our profession; and it is a great pity that he does, for by it I believe that he does his chief harm and gathers in a large part of his ill-gotten gains. His plan often is to create by mental influence a disease, or to greatly magnify one which does exist, and then cure it. In this way many so-called cancers, venereal troubles, etc., are cured by the quack.

Leaving, now, the public and the general considerations of this question, let us look at it as it comes to the physician in the treatment of his individual cases. This question of mental influence comes up more or less prominently in every case of sickness and injury. Briefly stated, there are two things to do,—

1. Remove baneful mental influences.
2. Surround the patient with all healthful mental influences.

How often does it happen that we see patients who are filled with ungrounded fears, constantly engaged in introspective thought, surrounded by a host of unhealthful mental influences, and whose mental state is such that it has greatly magnified the existent trouble or, indeed, largely overshadowed it? The strong assurances of the physician, given in a dignified, confident, and kindly manner, often at one leap place a patient on a plane where it is possible for him to get well. It would, of course, be impossible, in this very brief paper, to go into detail as to baneful mental influences; they will in individual cases suggest themselves to him who is on the alert for them. Nor, indeed, can the details as to healthful mental influences be considered, save for a word on the suggestions made by the physician. Patients often realize when there is an intelligent understanding of their

[1] Christian Science and its Relation to the Medical Profession. Trans. Med. Soc. Penna., vol. xxv.

cases. Encouragement, kindly sympathy, and intelligent suggestions of cure or relief are to be reasonably employed, together with appropriate medical or surgical treatment. By these I believe we may employ all the real good there is in hypnotism, in the most natural and healthful manner, without exhibiting any of the mysticism and engendering any of the suspicion which come from hypnotic sleep. That these suggestions may be in any way helpful, the physician must appreciate and understand the fundamental truths of mental influence, and possess and cultivate in himself a character which will make his own personality one from which healthful suggestions will radiate.

The harm which may be wrought by dishonorable or vicious persons in using mental influences has been already indicated. Above all other qualities, he who uses these powerful and subtle influences should possess honor; and he must use intelligence, discrimination, and tact in their employment. In the hands of the upright and intelligent physician mental influence becomes a powerful therapeutic agent,—a vast engine for good.

REVIEW OF MEDICINE.

MEDICINE.

IN CHARGE OF JOHN H. MUSSER, M.D.,
Assistant Professor of Clinical Medicine in the University of Pennsylvania; Visiting Physician to the Presbyterian and Philadelphia Hospitals,
AND
J. A. SCOTT, A.M., M.D.,
Physician to the Out-Patient Department of the Pennsylvania Hospital; Assistant Demonstrator of Morbid Anatomy in the University of Pennsylvania.

A Case of Infectious Icterus Levis. (*Deutsche medicinische Wochenschrift*, August 1, 1895.) By Professor G. Banti, of Florence.

N., aged twenty-two, of good family history, had never had any other disease than the present illness. On August 9, 1894, he was suddenly attacked with headache, chills, and fever. The bowels, moved with castor oil, were normally colored. Bleeding from the nose also occurred. There were no gastro-intestinal disturbances. On the 11th the urine was dark-colored, and on the 12th there was an icteric coloration of the skin and eyes. On the 13th he was sent to the hospital with a temperature of 39.9° C. His general condition was excellent. The liver extended two finger-breadths beneath the ribs, reaching up to the sixth and seventh ribs, and was slightly painful to the touch. The spleen extended three finger-breadths beneath the ribs, and was also slightly tender to the touch. The urine contained no albumin and did not react to Gmelin's test. On August

15 the urine passed measured six hundred cubic centimetres, and showed the presence of bile, the stool being well colored. The condition bettered itself, and on August 23 the patient left the hospital with but a slight yellowish coloration of the conjunctiva, the liver and spleen being free from pain on pressure.

The above is the clinical picture of what Stadelmann calls *icterus plerochromicus levis.* Suspecting the infectious nature of the disease, Banti, on the 15th of August, when the disease was at its acme, drew three cubic centimetres of blood from the spleen under the strictest precautions. This was distributed over a large number of agar tubes, as suggested by the author in *Lo Sperimentale*, April, May, 1890.

An organism called by Banti the *bacillus icterogenes capsulatus* was found in all the tubes. Gelatin is not liquefied; the cultures resemble the earlier growths of the cholera spirillum, or still more closely the bacillus of Friedländer, though growing somewhat slower than the latter. Casein is not coagulated in milk cultures, and the bacilli do not stain with Gram's method. The bacteria are four μ long by one μ broad, isolated or united, and the ends are rounded. Along with these forms are four others reaching the length of forty to sixty or even one hundred and fifty μ. In young cultures the capsule is especially readily stained with Ehrlich's solution. The bacilli are not motile. Mice when injected with bacilli beneath the skin die in three to four days, the bacilli often being found in the same capsule. The author has not yet completed his studies upon the organism, but while it most closely resembles the bacillus rhinoskleromatis, the proteus hominis capsulatus, and the proteus capsulatus septicus, there are certain points of differentiation which lead him to regard it as a separate variety of the family of encapsulated bacilli.

The writer does not consider that the organism found came from faulty methods of technique or was due to secondary infection, but that it was the cause of the illness. Attention is called to the fact that the stools contained bile during the entire sickness, and that there was thus no medicinal ground for the icterus.

The Quantitative Estimation of the Rennet-Zymogen; its Diagnostic Value in Certain Diseases of the Stomach. (*Medical News*, June 22, 1895.) By Julius Friedenwald, A.B., M.D., of Baltimore.

While variations are noted in the relation which the amount of hydrochloric acid secreted holds to the degree of pathological change of the gastric mucosa, the secretion of the ferments and their zymogens bears a definite relation to this change. The quantitative estimation of pepsin and its proenzyme has been attended with great difficulty; but the estimation of the rennet-ferment (lab) and its proenzyme (labzymogen) is very simple. In order to estimate the rennet-ferment, part of the gastric filtrate is exactly neutralized, and portions are diluted with distilled water, five cubic centimetres of each of these portions are placed in beakers and five cubic

centimetres of neutral milk are added and the mixture is placed in the thermostat. In order to estimate the rennet-zymogen, a part of the gastric filtrate is made slightly alkaline and portions of this are diluted. To five cubic centimetres of each of these dilutions one cubic centimetre of a one-per-cent. solution of calcium chloride is added and five cubic centimetres of milk. The dilutions can thus be detected at which these substances are no longer active. Under normal conditions the milk-curdling ferment may be present up to $\frac{1}{40}$ and the zymogen up to $\frac{1}{150}$. In those cases in which there is a normal or a diminished percentage of free hydrochloric acid, the milk-curdling ferment and its zymogen may be present in normal quantities or they may be markedly diminished. Their estimation, therefore, in these cases is of little value. The estimation of the milk-curdling ferment and its zymogen is of great diagnostic as well as prognostic importance in those cases of gastric disorder accompanied by an entire absence of free hydrochloric acid. In these cases (chronic gastritis or carcinoma) there is marked diminution of the zymogen, depending upon the severity and extent of the disease. In cases of nervous dyspepsia, as well as in secondary catarrh, the zymogen is present in normal proportions in dilutions of from $\frac{1}{150}$ to $\frac{1}{60}$. We can, therefore, readily determine whether there is actual disease of the gastric mucous membrane or simply a nervous or congestive condition. In those cases in which there is an absence of free hydrochloric acid and in which the labzymogen falls between $\frac{1}{60}$ and $\frac{1}{40}$, it is impossible to determine at once whether there is a catarrhal condition or whether nervous dyspepsia is present. Several examinations must be made to determine whether the labzymogen ranges above $\frac{1}{60}$ or below $\frac{1}{40}$. In cases of chronic gastritis the examination for labzymogen is of considerable prognostic importance. In those cases in which the labzymogen is diminished from $\frac{1}{15}$ to 0 there is no chance of recovery; in those in which it is diminished from $\frac{1}{40}$ to $\frac{1}{30}$ there is a possibility that judicious treatment may result in recovery. These conclusions are based on many hundred examinations. A series of tables is given showing the results in cases, in each of which three examinations were made.

The Varieties of Rheumatoid Arthritis. (*Lancet*, July 13, 1895.) By R. Fortescue Fox, M.D. (Lond.), of Strathpeffer Spa, N. B.

A class of affections for which relief is commonly sought at mineral springs is the complex group known as rheumatoid arthritis. Of this disease several varieties are noticed clinically. First, the rheumatoid arthritis of young subjects. It is in the young that the disease assumes its most severe and intractable and typical form. A large number of joints are usually affected, and there are, from the first, profound debility, rapid heart, profuse perspiration, and progressive wasting. The articular symptoms vary according to the severity and duration of the malady. In the acute condition there are synovial effusion, heat, and extreme pain and tenderness. The second period of the disease is marked by degeneration

and atrophy of both joints and muscles, with more or less deformity. The middle phalangeal joints, the wrists, and the tarsal joints seem to be particularly obnoxious to the disease. This form occurs most frequently in females, thirty-two out of forty cases. The average age in this form was twenty-two years and a half. In some cases depressing illness preceded the arthritis. The exciting cause is frequently stated to be chill or cold. Certain climates seem to be favorable to the development of the disease. Among the symptoms which may be called prearthritic symptoms may be mentioned "a want of animal heat" and "a sense of chilliness" and various localized painful sensations. Second, generalized rheumatoid arthritis of the climacteric epoch. This, of course, is always noted in females, the average age of onset being forty-eight years. In many cases the disease is much less severe than in the first class of patients. Intermissions are not uncommon after the first onset, and, after a few years, comparative quiescence with localization in one or a few joints is much more frequent than in the arthritis of the young. There is less profound constitutional disturbance and a more favorable prognosis. In this form of disease prearthritic symptoms are very usual and may continue for two or three years. Climacteric arthritis attacks married women much more frequently than single, and the patients are, as a rule, mothers. The evidence would indicate that abnormal conditions of or disturbance of the function of the uterus or ovaries has slight bearing on the disease. Third, generalized rheumatoid arthritis in the old, senile rheumatoid arthritis. In this group males seem to be the principal sufferers, ten out of twelve cases, and the average age of onset fifty-six and a half years. This is the only form of polyarticular arthritis that can be truly said to belong to the degenerative period. Its onset is frequently preceded by nervous disturbance. The connection between rheumatic fever and rheumatoid arthritis is altogether exceptional and accidental. In respect to chronic rheumatism, the connection with arthritis appears to consist in the two facts that both disorders may be set up by exposure to cold and damp, and that in both there is usually a painful enlargement of the joints. Painful affections of the muscles, nerves, or joints frequently result from exposure to cold and damp, they affect elderly and predisposed subjects, their course is essentially chronic; but there is never the debility or cachexia of arthritis, and arthritis never supervenes on this form of rheumatism. The invasion of the joints is usually centripetal, beginning from the small joints of the extremities. Mental disturbance is noted as a companion to the disease most frequently in the senile group, but also occurs in the other two classes. Localized forms of arthritis are entirely separate from the generalized disease, and nodi digitorum, Heberden's nodes, and joint arthritis are middle-age or senile changes and are not associated with rheumatoid arthritis. The causation is complex: there is an inherited local vulnerability both of the nervous centres and of the joints; next a particular condition of disturbance incidental to different periods of life; then the depressing effect of acute antecedent illness; and,

lastly, external causes which affect first and chiefly the feet and hands. There is strong evidence that some implication of the nervous system takes an essential contributory part, and the disease may be looked upon as a neurosis of which the principal manifestation is found in the joints.

Of the Coexistence of Chicken-Pox and Measles in the Same Individual. (*Gazette des Hôpitaux*, June 15, 1895.) By Dr. Szczypiorski, of Longwy.

The author reports five cases in which were observed distinct attacks of measles and chicken-pox. The eruption of chicken-pox appeared first in all the cases and had not entirely disappeared when measles manifested itself. Since chicken-pox may be accompanied by a scarlatiniform eruption, which is polymorphous and resembles the eruption of measles, it is necessary to establish the differential diagnosis. The differentiation in these cases was easy on account of the coexistence of the two diseases, by the accentuation of the oculo-nasal and bronchial catarrh, and by the evolution of the eruption. In doubtful cases the diagnosis ought to be made if possible, for it is very important not to confound scarlet fever complicating chicken-pox with a scarlet rash occurring with that disease. It is equally important that the family be informed of the true meaning of the eruption.

Leucomaine-Poisoning. (*Medical Record*, June 22, 1895.) By B. K. Rachford, M.D., of Cincinnati, Ohio.

Leucomaine-poisoning is a very important phase of auto-intoxication, and it may manifest itself in at least three distinct but closely allied clinical forms; first, as a true migraine or leucomaine headache; second, as a migrainous epilepsy or leucomaine epilepsy; and, third, as a migrainous gastric neurosis or leucomaine gastric neurosis. Paraxanthin is by far the most poisonous of all leucomaines. Both paraxanthin and xanthin are poisonous leucomaines of the uric acid group, capable of producing the most profound nervous symptoms; they are readily soluble in water, urine, and blood. Paraxanthin is found in normal urine in such small quantities that its poisonous properties are lost in dilution. It is present in abnormally large quantity when it can be found in less than four litres of urine. Paraxanthin and xanthin are not formed in the kidney; they are excreted from the blood by the kidneys. The presence, therefore, of large or small quantities of xanthin bodies in the urine means that these bodies were present in equal quantity in solution in the blood previous to their elimination by the kidneys. Migraine, which has heretofore been ascribed to uric acid and to many other causes, is perhaps the most common manifestation of leucomaine-poisoning. In a case of migraine reported, paraxanthin has been found in two litres of urine during an attack, while between the attacks this substance could not be found. As characteristics of migrainous epilepsy we have: 1, the sudden onset of the attack, as a rule, without

warning; 2, muscles rigid, but not convulsed; 3, labored, gasping, irregular breathing; 4, unconsciousness from beginning to end of the attack; 5, heart's action rapid and strong. Examinations of the urine in an illustrative case show clearly that during these epileptoid attacks the excretion of urea is very much decreased and the excretion of uric acid is vastly increased. Paraxanthin was found in four litres of the urine, in large proportion. From the study of the case of migrainous epilepsy reported, the following summary of facts may be made.

1. Uric acid and its compounds are not poisonous.

2. Paraxanthin and xanthin are poisonous leucomaines of the uric acid group, which, when injected into mice, produce the following symptoms: 1, nervousness, extreme reflex excitability, almost a tetanus, and, at times, convulsive movements; 2, clonic tetanic stiffening of all the muscles, followed by muscular relaxation; 3, dyspnœa, orthopnœa, asphyxia; the gasping and difficult respiration is perhaps the most characteristic symptom; 4, stimulation of the heart, its movements being rapid and strong.

3. The patient during the interval between the attacks does not excrete sufficient paraxanthin to be detected in three litres of urine.

4. The patient during an attack excreted a quantity of paraxanthin and xanthin enormously in excess of the normal quantity. The paraxanthin thus excreted and obtained from three litres of urine produced in the mouse and rat the characteristic symptoms of paraxanthin-poisoning above narrated.

5. The attacks during and after which this patient excreted such large quantities of paraxanthin were very similar in symptomatology to paraxanthin-poisoning in the mouse.

6. The paraxanthin excreted in such large quantities just following these attacks must have been in solution in the blood during the paroxysm.

In the light of these facts it seems impossible to resist the conclusion that the attacks from which the patient suffers are due to the presence in the blood of an excess of paraxanthin and possibly of other poisonous leucomaines. A case illustrative of migrainous gastric neurosis is reported from which the following facts are obtainable: first, a family history of migraine; second, previous personal history of sick-headache; third, the patient now suffers from attacks of a severe gastric neurosis, which have recurred at intervals of two or three weeks, ever since the attacks of sick-headache ceased, five months ago; fourth, in four litres of urine, passed by this patient in the interval between these attacks, no paraxanthin was found and the "final fluid" was not poisonous to mice; fifth, in two litres of urine passed by this patient during an attack, both xanthin and paraxanthin were found in comparatively large quantities, and the "final fluid" was very poisonous to mice; sixth, from about one pint of stomach contents vomited by this patient during an attack, xanthin was separated, but no paraxanthin was found. The conclusion is that leucomaine-poisoning is a very important factor in producing these gastric attacks.

Enteric Fever in Children and Infants. (*Medical Record*, March 16, 1895.) By W. L. Stowell, M.D., of New York.

The paper is based on a careful study of thirty-four cases occurring in the author's practice and a tabulation of eighty-five cases of the disease in infants culled from the literature. The average age of all the author's cases was 7.97 years. All the cases tabulated as occurring in infants were found in individuals under three years of age. The mortality in children of average age was 2.95 per cent.; in infants the mortality reached 31.76 per cent. From the study of this series of cases the author draws the following conclusions: First, the disease is common in childhood and is not more rare in infancy than is explained by lack of exposure. Second, the types and varieties do not differ materially from those of adults. Third, the duration is shorter, because the tendencies in childhood are more towards growth and repair than in the adult, whose nutritive functions are all employed in repair alone. Fourth, the prognosis is best in children because they usually have healthy organs to fight the invader and so have few complications. Fifth, in infants the mortality is high, because the extremes of life are feeble, one having had no latent strength, the other having exhausted it. Sixth, children who die of enteric fever itself, die, as adults do, of perforation or exhaustion.

Cirrhosis of the Liver in Childhood, with Microscopic Report. (*Archives of Pediatrics*, July, 1895.) By William A. Edwards, M.D., of San Diego, California, and William M. Gray, M.D., of Washington.

The paper is a further study of a case, the clinical notes of which were reported on a previous date. The patient was a child, aged twelve years and four months, who was under observation for two years. The disease pursued about the usual course as seen in the adult. Thirty days before death ascites arose and paracentesis abdominalis was necessitated. The gain following the operation was of short duration, the urine became scant, high colored, and bile-stained, and was voided with difficulty; convulsions arose and the child died in one of the spasms. At autopsy the liver weighed six hundred and sixty-five grammes, and was a remarkable example of atrophic cirrhosis. There was an uncommon increase of inter- and intralobular connective tissue. The gall-bladder was comparatively normal. The kidneys were swollen, congested, hyperæmic, and the seat of parenchymatous nephritis, which was rapidly being transposed to a condition of interstitial nephritis. The vermiform appendix was gangrenous from its terminal extremity almost to its origin in the cæcum; but there was no perforation. This condition was probably due to the poor blood-supply of the organ, together with the pressure exerted upon it by the ascitic fluid and by a distended cæcum, colon, or ileum. It is remarkable that life could be sustained with such an important organ as the liver in so advanced a stage of disease. The affection can no longer be considered rare. The natural history of the disease in childhood shows that it does not differ

from the same disease in the adult. Its cause, clinical symptoms, diagnosis, and prognosis are identical. Alcoholism seems to have the same relation to the disease in early life as in the cirrhosis of adolescence or of advanced age. An attack of one of the eruptive fevers has an important etiological bearing.

The Meaning and Import of Casts in the Urine without Albumin. (*Medical Review*, June 29, 1895.) By Dr. Ludwig Bremer, of St. Louis.

A person who constantly or periodically passes urine containing casts, even without albumin, or perhaps with albumin in chemically demonstrable quantity, is not in good health. Such a person has a damaged constitution; his kidneys are, to say the least, vulnerable, and he is prone to contract and to succumb to other diseases. The irritative process which gives rise to the formation of casts may not amount to an actual state of inflammation, and there may not be the recognized signs of fully developed kidney-disease, and yet the subjective symptoms may be very pronounced. These symptoms are often unaccountable to the attending physician because sufficient importance is not attached to the presence of casts in the urine of such persons. In a number of cases periodic, intermittent albuminuria is the feature, and the albumin is in evidence only when a nerve storm of unusual severity has set in. Such patients may be considered to have vulnerable kidneys. For a long time such patients may not present any albuminuria, the casts only being demonstrable, or even these may disappear, and the urine be absolutely normal, yet there is a dormant pathological condition which may be aggravated into activity. The diagnosis of vulnerable kidney may be doubted by other physicians. Aside from examinations which are based on chemical analysis exclusively, there are several reasons why the search for casts may be negative: first, microscopical incompetency; second, the kidney trouble may have become latent and the casts may be really absent; third, insufficient instrumental equipment,—the centrifuge should always be used; fourth, the examiner, even if he find casts, may not attach any importance to them if unaccompanied by albuminuria. Among other reasons why the presence of casts in the urine is alleged to be compatible with perfect health is the finding of them in the urine of athletes after great muscular exertion. The athletes presenting this condition were certainly damaged men. The symptoms produced by this vulnerable kidney range over the neuroses, particularly neurasthenia, inexplicable gastro-intestinal manifestations, and grippe symptoms, megrim, and other forms of periodic headache.

Notes on the Etiology of Goitre. (*British Medical Journal*, July 6, 1895.) By H. C. L. Morris, M.D. (Brux.), L.R.C.P., M.R.C.S., of Hambleden.

The author practises in a district having a population of about two thousand, and he has had fifty-five cases of goitre under his care in the

past two and one-half years. The soil of the district is excessively chalky, and, with few exceptions, the water-supply is obtained from deep wells sunk into the chalk. When the springs are low the water is drawn up and even consumed while still milky in color. The author attributes the cause of the goitre to the presence of calcium and magnesium carbonate in the water. Heredity, intermarriage, and the presence of iron in the water, can be excluded as causative factors. The people who live on the tops of the hills and who drink stored rain-water are not affected with the disease.

The Knee-Jerk in Diagnosis. (*New York Medical Journal*, June 29, 1895.) By William M. Leszynsky, M.D., of New York.

Primarily, the knee-jerk depends on the integrity of the reflex arc, situated in the third or fourth lumbar segment. The ordinary and customary method of testing the knee-jerk, while the person's legs are crossed, may suffice when it is quite active; but the utmost care is necessary when there is any doubt as to the character of the reaction. It is never safe to say that the knee-jerk is absent unless repeated and varied tests have been made with the clothing removed. The exaggeration or absence of the knee-jerk, *per se*, is not pathognomonic of any special type of disease; corroborative signs must be present. The absence of the knee-jerk is of more positive value than its exaggeration. A lesion which involves the posterior roots or the posterior columns in the region of the second, third, or fourth lumbar segments, such as tabes or transverse myelitis, causes the abolishment of the knee-jerks, and these are the only lesions in the sensory tract that are known to cause such a loss. A lesion involving the motor portion of the reflex arc, such as acute or chronic anterior poliomyelitis, or multiple or isolated peripheral neuritis, affecting the anterior or crural nerves, will also abolish the knee-jerk. The knee-jerk is present in children over three years of age.

1. Loss of knee-jerk associated with severe paroxysmal pains in the lower extremities, with incontinence of urine or slowness in emptying the bladder, with preservation of muscular resistance, with or without incoördination, with or without objective sensory symptoms, is indicative of organic changes in the lumbar segment of the cord, such as tabetic degeneration or a lesion of the posterior nerve roots.

2. Loss of knee-jerk associated with diminished muscular resistance or evident paralysis of the lower extremities, pain in the course of the nerve trunks with tenderness on pressure, some atrophy and quantitative decrease in faradic irritability, with or without objective sensory disturbances and the absence of bladder symptoms, is a clinical picture of multiple neuritis.

3. Loss of knee-jerk with flaccid paralysis, atrophy, and loss of faradic reaction in the quadriceps, and the absence of all sensory symptoms, indicates a poliomyelitis in the lumbar portion of the cord on the same side.

As a general rule the knee-jerk does not disappear so long as there exist in the reflex paths a certain number of healthy muscle and nerve elements.

On the other hand, in all lesions which affect the nerves in their totality the knee-jerk is abolished. In all cases of transverse myelitis, spinal cord hemorrhage, and traumatisms of the cord, if we observe the abolition of the knee-jerks, an unfavorable prognosis should be given. In all cases of chronic, organic intracranial disease, in which indications of the position of the lesion are absent, the occurrence of this symptom suggests a cerebellar process. Changes in the unilateral reflex permit of the diagnosis of a one-sided lesion with greatest certainty, while an involvement of the reflexes on both sides, excluding polyneuritis, always indicates an affection of the central nervous system in its totality. The knee-jerk is occasionally absent in the early stages of meningitis; it is also absent when there is a supervenosity of the blood, in asphyxia from coal-gas, and in the acute stages of some cases of apoplexy. In distinguishing a genuine epileptic convulsion from simulation we must consider the absence of the knee-jerks and the absence of light reflex with dilated pupils as crucial tests in excluding simulation. The knee-jerk is absent in cases of diabetes only when there is peripheral nerve degeneration. Any obstructive or destructive process involving the upper or cerebro-spinal segment of the motor tract is likely to occasion an exaggeration of the knee-jerk. Should the lesion be situated above the crossing of the motor tract, the exaggeration occurs upon the opposite side of the body, while a lesion below would manifest its symptoms on the same side. This exaggeration may be demonstrated after the administration of certain drugs, as bromide; it may exist attending primary or secondary degeneration affecting the lateral columns of the cord; it may exist in some cases of hemiplegia from hemorrhage in the internal capsule; lastly, it may exist in the early stages of paretic dementia, except in those cases in which the posterior columns were primarily involved. As the knee-jerks are often pronounced or excessive in neurasthenia, hysteria, alcoholism, and mental fatigue, we must admit that in many instances the interpretation of such a symptom is more difficult than the interpretation of the absence of the knee-jerks.

A Case of Syphilitic Endocarditis causing Mitral Valve Insufficiency. (*Maryland Medical Journal*, June 22, 1895.) By Charles O'Donovan, M.D., of Baltimore.

The author reports the case of a man, aged thirty-six, who presented symptoms referable to the heart. This organ presented the murmur of mitral regurgitation, a thrill was felt, and the cardiac action was very irregular. The case was given the treatment ordinarily employed in cases of broken compensation; the patient did not improve. After a thorough and fruitless trial of these remedies, the possibility of a syphilitic taint became a strong probability, and the patient was put upon red iodide of mercury and iodide of potassium, and in three or four days the improvement was manifest, and in about two months the murmur could not be detected. This murmur could not have been rheumatic nor could it have been hæmic.

The course of the disease seemed gradually but surely progressive, alike under good care and attention as under the grossest neglect and positive abuse. No marked improvement followed any treatment until the patient was put upon the iodides, when he began at once to receive benefit. The course of improvement is so very like recovery from some syphilitic nervous lesion that the striking analogy renders the diagnosis almost certain.

The Modern Aspect of Indicanuria, with Special Reference to the Relation between Indican and the Acidity of the Gastric Juice. (*American Journal of the Medical Sciences*, July and August, 1895.) By Charles E. Simon, B.A., M.D., of Baltimore.

After a careful and exhaustive review of the literature, and after much original investigation and many experiments on the indican reaction of the urine, the author summarizes his results as follows:

1. The gastric juice possesses antiseptic and germicidal properties.

2. These properties are referable to the presence of free hydrochloric acid.

3. A subnormal amount of free hydrochloric acid will call forth an increased degree of intestinal purtrefaction.

4. The conjugate sulphates form an index of the degree of intestinal putrefaction.

5. The increased intestinal putrefaction in cases of subacidity and anacidity of the gastric juice is largely referable to an increased formation of indol.

6. The elimination of indican in the urine may be regarded as an index of the amount of free hydrochloric acid present.

7. A normal acidity of the gastric juice is never associated with increased indicanuria.

8. Cases of ulcer of the stomach apparently form an exception to this rule, an increased indicanuria being usually associated with hyperchlorhydria.

9. In other cases of hyperchlorhydria a subnormal or normal amount of indican is eliminated.

10. Simple constipation is rarely accompanied by an increased elimination of indican.

11. Diarrhœa referable to a catarrhal condition of the colon, often following a previously existing coprostasis, as well as diseases of the colon in general, is not associated with an increased indicanuria.

12. In the differential diagnosis between ileus and coprostasis, a small amount of indican excludes the former condition.

13. In cases of an achlorhydria with much lactic acid, the indican is not necessarily increased.

14. No indican, or but little indican, with delayed Günzburg potassium iodide reaction, indicates the absence of free hydrochloric acid, with much lactic acid.

15. Much indican, with a normal or anticipating Günzburg reaction, is suggestive of ulcer.

16. In cases in which the use of the gastric tube is impracticable or contra-indicated, or in cases of a mere superficial examination, the indican reaction will furnish a valuable index of the condition of the patient's digestive powers.

17. By means of the indican reaction we are enabled to follow very closely the results of treatment instituted in cases of gastro-intestinal disease.

Given as premises:

1. That a resorption of decomposing pus is not taking place anywhere in the body; as such a process itself is capable of producing an increased elimination of indican.

2. That there does not exist a stenosis of the small intestine.

3. A normal mixed diet containing no excessive amounts of red meats.

The author does not wish to convey the impression, however, that with the adoption of this method the use of the gastric tube for diagnostic purposes should be abandoned. From a careful analysis of the urine, it is true, many points of undoubted value can be obtained regarding the condition of the stomach, small intestine, etc., but nevertheless, the information thus obtained cannot as yet be so complete as that furnished by a direct examination of the stomach contents. As confirmatory evidence, however, and as a method to be employed when, for any reason, the use of the tube is either contra-indicated or impracticable, the same will be found of decided value.

A Clinical Study of the Last Epidemic of Grippe which visited Athens. (*Le Progrès Médical*, June 22, 1895.) By Dr. Spiridon Kanellis, of Athens.

The epidemic began in the last fifteen days of December, 1893, and, after the first twelve days of January, 1894, abruptly ceased, only showing itself further by a few isolated cases. Following the epidemic the author noted five cases of typhoid fever and fourteen cases of chicken-pox in children, all of whom had previously suffered from influenza. The thoracic form of the disease was the most frequent, and presented slight symptoms of catarrhal bronchitis in some cases and in other cases severe bronchopneumonia. The pneumonias were characterized by absence of bloody expectoration, by a very prolonged respiratory murmur, and by the absence of the characteristic chill. The alterations in the bronchial tubes of a congestive type have been very slight. In five phthisical patients attacked by the grippe, the disease has been very slight. In three patients with asthma, an attack of grippe brought on new asthmatic paroxysms. In the nervous form of influenza all types of neuralgia were represented,—neuralgic headache, neuralgia of the heart, intercostal neuralgia, neuralgia of the shoulder and hip, pains in the loins, and sharp pains in the legs. As a rule, the

neuralgia affected the branches of the pneumogastric nerve. In several cases, neuralgias accompanied by slight malaise and a frequent pulse, without elevation of temperature, were the only symptoms of influenza. There were no hemorrhages observed, neither from the ears nor from the bowels. In females, menstruation was not more abundant nor prolonged, nor did it occur twice in the same month. Twice there was slight nosebleed. From these facts it is concluded that the infection was neither active nor severe. The gastro-intestinal form was marked by coated tongue, loss of appetite, constipation, and, at times, diarrhœa; bilious vomiting was occasionally noted. The majority of patients complained of pain in the throat followed by an inflammation of the pharynx and sometimes by a grippal tonsillitis. In other cases a unilateral tinnitus was seen. As sequelæ were noted urticaria, facial erysipelas, acute catarrhal cystitis in the female, hydrarthrosis of one knee accompained by rheumatic pains in both knees and the tarsal joints. Influenza was also noted affecting children and infants.

Report of Five Cases of Thoracic Aneurism. (*Occidental Medical Times*, July, 1895.) By George Rothgauzer, B.A., M.D., U. S. N., of Mare Island, California.

The author reports a case of aneurism of the ascending portion of the arch of the aorta, two of the transverse portion of the arch, one of the descending portion of the arch, and one of the thoracic aorta. The cases present several difficulties in the way of diagnosis. In the first case a murmur could be heard in place of the second sound at the aortic cartilage, and posteriorly, over the lower lobe of the left lung, friction sounds could be heard. There was severe pain in the chest. During the time the patient was under observation he had paroxysms of dyspnœa, with cyanosis and œdema of one foot followed by gangrene. At autopsy an aneurism of the ascending portion of the arch of the aorta was found, about the size of a pigeon's egg, which pressed upon the pulmonary artery. This pressure accounted for the cyanosis and dyspnœa. The second case applied for relief from rheumatic pains in the chest and shoulders. There were two hemorrhages from the lung during the illness and frequent expectoration of clotted blood. This case was also complicated by gangrene of the foot, and the patient died from the septic condition set up by the gangrene. At the autopsy an aneurism, the size of a gull's egg, was found at the beginning of the descending portion of the aorta. This aneurism projected into the left lung and had partly ruptured, thus accounting for the pulmonary hemorrhage. The blood entered the parenchyma of the lung and found its way into the smaller bronchi, and was then expectorated. There was no pressure on the bronchus or on the vertebral bodies and only slight pressure on the œsophagus. The gangrene was accounted for by the presence of an embolus in the left popliteal artery. In the third case there was a tumor in the sternal region extending above and below the second and third interspaces. Over this tumor there were a dull percussion note and a loud bruit.

There were also cough, greenish expectoration, and dyspnœa. This patient improved under Tufnell's treatment, but died finally from rupture of the aneurism, after passing from observation. There was no autopsy. The fourth case was first seen at the moment of death. The patient had complained of persistent pain in the back; but, as no objective symptoms could be found, he was considered a malingerer. The autopsy showed an aneurism, the size of a small fist, involving the thoracic aorta. It had ruptured into the left pleural cavity after having eroded the bodies of the sixth, seventh, and eighth dorsal vertebræ by its pressure. The fifth case was seen in a patient with a syphilitic history. The man complained of præcordial pain and tenderness, palpitation, and vertigo. There was a pulsating tumor between the lower border of the second left costal cartilage and the upper border of the fifth left costal cartilage; its right border was one inch to the left of the sternum and the left border was in the left mammary line. There was tracheal tugging and a murmur over the tumor. In this case Tufnell's treatment gave no benefit. The patient is still under observation.

Phosphorus in Oysters. (*Mercredi Médical*, June 19, 1895.)—Charrin and Müntz have found that oysters, long known to contain much phosphorus, yield a notable, but variable, proportion of direct assimilable phosphorus in the form of a tribasic phosphate. One dozen Portuguese oysters contain 0.4 gramme of phosphoric acid, representing one gramme of the tribasic phosphate of lime. One-third less is obtained from the oysters of France.

THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,
Professor of Therapeutics, McGill University, Montreal, Canada,
ASSISTED BY
D. J. EVANS, M.D.

The Alternating Treatment of Diabetes Mellitus. (*Bulletin de l'Académie de Médecin*, No. 23, 1895; *British Medical Journal*, August 10, 1895.) By P. Robin, M.D.

The writer, believing that in this disease there is an increased activity of the chemical changes of general nutrition, the result of increased activity of the nervous system, recommends the administration of drugs which diminish the activity of these changes by acting primarily on the nervous system. His treatment is divided into three stages: (1) For four days a powder containing about fifteen grains of antipyrin and eight grains of sodium bicarbonate is given twice a day. In addition cod-liver oil is taken with the meals, and Seignette salt as a morning purgative. (2) At the end

of four or five days the antipyrin is discontinued, and sulphate of quinine is prescribed, about six grains in a cachet at the mid-day meal. This is taken for six days, then discontinued for four days, and afterwards taken again for six days. Before the morning and evening meals a cachet is recommended containing arseniate of soda, carbonate of lithium, and codeia. (3) After fifteen days these drugs are discontinued, and the author prescribes for ten days a pill containing opium, belladonna, and valerian. The cod-liver oil is discontinued, and the patient allowed to drink a weak solution of bicarbonate of soda (1 in 125); bromide of potassium may be added if there is any intolerance of either the opium or belladonna. On account of the loss of inorganic salts in diabetes, the author endeavors to maintain the supply, by ordering a liberal supply of salt with the food, and the use of green vegetables.

If sugar is still present in the urine after the completion of this course, it is recommenced: after a second course, whether the sugar has disappeared or not, the drugs are discontinued for one month. By this alternating method M. Robin has treated one hundred cases of diabetes, in each of which the daily excretion of sugar exceeded one hundred grammes. In twenty-four of these recovery has occurred; in twenty-five recovery is still doubtful; in thirty-three there has been considerable improvement; in eighteen the results have been negative.

On the Action of Quinine on the Kidneys and Genital Organs during Pregnancy. (*Edinburgh Medical Journal*, August, 1895.) By George Coromilas, M.D.

This writer states that although in some cases quinine administered to pregnant women appears to have little oxytocic action, in others it has the power of exciting uterine contractions, more particularly in delicate, nervous, and anæmic women. He has also observed that quinine administered during menstruation in some cases stops the flow, and frequently diminishes it. He relates the histories of four cases in which quinine apparently induced labor-pains, and thinks that during pregnancy and menstruation, quinine should not be given in large doses, unless it be in conjunction with some narcotic that will act as a sedative upon the uterus.

Therapeutics of High Frequency Currents. (*Lancet*, August 10, 1895.)—In a short editorial reference is made to the important paper read by Dr. Apostoli on this subject at the meeting of the British Medical Association, which, it says, represents the direct practical application of physiological facts. A current of high frequency and high potential is caused to traverse a large helix inside which the patient is placed, and the effect is to set up induction currents of a similar kind inside the patient's body. These travel in closed circuits through the tissues, and produce nutritive changes, which can be recognized by their effect in increasing the elimination of carbon dioxide and of urea. The actual figures are prom-

ised at an early date. The results are good in diseases characterized by failure or impairment of nutrition, and accordingly Dr. Apostoli reports successes in anæmia, gout, rheumatism, neurasthenia, and hysteria. In diabetes, also, there have been some favorable cases. The principle of the localized application of electricity for the relief of disease, so ably insisted upon by Duchenne, has delayed the recognition of the important general effects to be obtained from electrical treatment. At present there is a distinct movement in favor of general electrification as a therapeutic means, and the results appear to be almost identical in character, whether the method employed be by the alternate current electric bath, advocated by Gautier and Laret, or the high potential induction method of Apostoli, or the electrostatic methods favored by Vigouroux and Morton, of New York.

Electricity in Medicine. (*New York Medical Journal*, May 4, 1895.) By Wm. James Morton, M.D.

In a paper read before the Medical Society of the State of New York, the writer suggests as a definition of electro-therapeutics that it is, in a biological sense, the transformation, by the law of conservation of energies, of electric energy into the energy peculiar to vital cells. To be worked with successfully, it must be regarded not as an entity like a drug, but as having a considerable number of powers for action, or properties, such as electrolysis, cataphoresis, contraction of protoplasm, nutritional effects, etc., each of which properties may be employed, singly or combined, to combat morbid conditions. Retaining the familiar medical classification into galvanic, faradic, and franklinic currents, he states their properties as follows:

1. Of the galvanic current it may be concluded,—

(*a*) That strong currents depress nutrition of tissues and produce structural changes leading to physiological atrophy (twenty to a hundred milliampères).

(*b*) That mild currents stimulate nutrition and produce physiological hypertrophy (one to eight milliampères).

(*c*) That mild galvanic currents, pulsating or alternating, produce similar effects to mild continuous currents.

(*d*) That the negative pole is specifically indicated in that large class of cases termed chronic inflammation where newly-formed fibrous tissue or exudate occurs.

(*e*) That upon the writer's theory—already accepted by several prominent physiologists—and observations, that catabolic or destructive events in tissue uniformly present the sign of negativity,—that is to say, are at their origin electro-positive (resembling the zinc of a voltaic cell), the negative pole is indicated to arrest the catabolism, the positive to augment it.

(*f*) That the positive pole is rarely indicated, and, if so at all, upon the basis of an electrotonic effect to produce sedation of neuralgic pain in superficial nerves.

2. Of the faradic current it may be concluded,—

(*a*) That its main uses are to tetanize muscle and to cause sedation of pain.

(*b*) That the tetanizing current as now employed to treat paralyzed muscles is injurious, since it enfeebles the muscle and causes atrophic structural changes.

(*c*) That to strengthen or properly exercise a paralyzed muscle, a slow rhythm of the faradic current, about thirty waves to the second, should be adopted.

(*d*) That in some spastic conditions of muscles (due to paralysis of an opposing group) the strong tetanizing current may be used to advantage to over-stimulate, and thus to fatigue the muscle.

3. Of the franklinic current or static electricity, it may be concluded that it is an adjunct of great efficiency in practice, since—

(*a*) It evokes the usual nerve and muscle reactions.

(*b*) It affords a most convenient means of stimulating the peripheral distribution of the nerves in the skin, producing counter-irritating, reflex, and other afferent impression effects.

(*c*) It has a local perturbatory action (spark).

(*d*) It produces profound alterations in the metabolism of the individual, increasing the natural waste products and diminishing the toxic or by-products. For this reason it is specifically indicated in cases of malnutrition, whether local or general.

A Report on Salophen. (*New York Medical Journal*, May 25, 1895.) By Bertram H. Waters, M.D.

The writer in this paper states the results obtained from the use of this drug in the treatment of acute rheumatic fever in the Presbyterian Hospital, New York. On commencing the treatment in all cases, an initial dose of from three to five grains of calomel, followed by a saline purge, was administered. In most of the cases an alkali was also given, either sodium bicarbonate or a combination of several of the potassium salts; occasionally morphine or immobilization of the joints during the first twenty-four or forty-eight hours was used for relief of the acute joint-tenderness. The drug itself was given in quantities varying from ninety to one hundred and twenty grains in the twenty-four hours. It was generally given dry on the tongue, and followed with water or milk. After recording the details of twenty-five cases, he draws the following conclusions:

1. That in almost every case improvement has been rapidly effected, and the average length of time for reduction of fever has been six days, as against eight days for the treatment by oil of winter-green, and nine days by the sodium salicylate.

2. That no complication more serious than the extension of the process to other joints was observed.

3. That the average length of hospital treatment has been under salo-

phen eighteen days, for oil of winter-green and sodium salicylate each twenty-five days approximately. This period includes after-treatment with iron and tonics.

4. That in no cases have gastric, renal, or constitutional disturbances been observed, while all these conditions have been developed under the use of other drugs. It is exceedingly easy of administration, and is not at all unpleasant to the taste.

A Note on the Therapeutic Value of Silver Nitrate. (*Dublin Medical Journal*, August, 1895.) By H. C. Tweedy, M.D.

In a short paper the writer relates the details of a case of locomotor ataxia, which was very markedly improved under the use of silver nitrate. Although the silver was given with much caution, and frequent and prolonged interruptions, argyria ensued. He concludes that no precautions can guard against the staining that follows the prolonged use of silver, but excepting the staining, silver nitrate appears to produce no injurious symptoms. At the same time no drug had the same beneficial action upon the symptoms as had the silver nitrate. The case was under observation for more than twenty-three years. The ataxic and neuralgic symptoms gradually disappeared under the use of the drug. On its discontinuance they returned after an interval, but vanished again and again on resuming the nitrate. Dr. Tweedy says, "It is now more than ten years since he showed any definite symptoms of ataxia. He has none whatever at the present time, and I think it may be fairly conceded that the discoloration of the skin has not been an extravagant price to pay for the benefits he has derived from the use of the drug."

SURGERY.

IN CHARGE OF HENRY R. WHARTON, M.D.,

Demonstrator of Surgery and Lecturer on Surgical Diseases of Children in the University of Pennsylvania; Surgeon to the Presbyterian Hospital, the Methodist Episcopal Hospital, and the Children's Hospital; Consulting Surgeon to the Presbyterian Orphanage,

AND

JOSEPH P. TUNIS, A.B., M.D.,

Assistant Demonstrator of Surgery in the University of Pennsylvania; Surgeon to the Dispensaries of the Presbyterian, Methodist Episcopal, and Children's Hospitals.

Post-Influenzal Osteitis, Periosteitis, Arthritis, and Inflammations of Fasciæ. (*Archiv für klinische Chirurgie*, vol. xlix., No. 3, 1895.) By Felix Franke, M.D.

This author calls attention to a new form of infective inflammation which he has observed subsequent to attacks of influenza, and of which he reports in detail twenty cases. The most frequent form is an osteitis or osteoperiosteitis which may go on to suppuration, or may produce simple

local swelling and œdema and be followed by resolution. Like all the other manifestations, it can only be diagnosed by its proximity to an attack of influenza, or by the presence of symptoms of that disease concurrently with it. When any of these inflammations resist all treatment and go on in a chronic course of latent character, the possibility of an etiology in influenza should not be overlooked, and a history of a series of attacks or the presence of symptoms should tend to confirm the diagnosis. Osteo-periosteitis is the most frequent form, and under it may be classed, according to this author, the disease described by Albert as "Achyllodynie," where the insertion of the tendo Achillis is the seat of a periosteitis. The involvement of fascia is next in frequency, and chiefly an inflammation of the plantar fascia, whereby it becomes thickened without outward signs of inflammation; the thickening is usually along the inner border and at the insertions of the fascia. It is slightly sensitive to pressure, and is painful to stand or walk upon for any length of time. Arthritis, having as its sole cause an infection due to influenza, is seldom seen, but does doubtless occur. The symptoms may manifest themselves three or four days after the inception of an influenza, but may be latent for even many weeks.

The resistance to all treatment is very marked; the best results are derived from the applications of moist heat and massage, with incision and drainage in cases that go on to suppuration. The salicylates have been of no avail, as also all ointments and counter-irritation, except, perhaps, in certain cases of ichthyol.

The Radical Operation for Inguinal Hernia in Children. (*Archiv für klinische Chirurgie,* Band xlix., Heft 4, 1895.) By Wm. Bittner, M.D., of Prague.

The author reports thirty-eight cases of hernia in thirty-four patients, with one relapse, and one death from lobar pneumonia in a child that was found to be markedly tubercular. In four cases operated on for strangulated hernia one died that was comatose at the time of operation. The author believes that in children the radical cure is preferable to treatment by truss, as there are many cases which a truss cannot cure, and in which relapses and grave complications arise during the wearing of one. There are many cases in which the truss does not hold the hernia in a safe and proper position. From the social stand-point, the truss produces bad effects on the mental condition and development of the individual. In all cases of strangulated and incarcerated hernia the radical operation should be performed. Healing follows on an average in ten days, and the operation is well borne by children. The operation preferred by the author is a simple suturing of the canal. After an incision extending longitudinally over the hernia from the internal ring downward and the division of the cremaster muscle, the cord is sought for, and the sac laid bare by careful dissection on the grooved director. It is then easy to dissect it out by blunt dissection, except, perhaps, where the sac is adherent to the tunica vaginalis testis when

that organ is exterior to the sac. When the sac is entirely free up to the external ring, the contents are reduced and the sac is ligated as high up as possible and divided. When the external ring is large and there is free communication with the peritoneal cavity, it is better to suture the neck of the sac by a running suture. The inguinal canal is now closed by interrupted sutures, five or six in number, using curved needles, and including as much of the walls of the canal as possible, the cord being guarded meanwhile by the finger. In complicated cases the anterior wall of the canal may be divided, and then both deep and superficial sutures are required. If the testicle is within the sac, sufficient sac should be left to cover it, and should be sewn over it with a running catgut suture. Complicating hydroceles should be treated radically by removing the lining membrane. Silk was the material employed for sutures and ligatures. The dressing was of iodoform gauze, cotton, a protective to prevent soiling of the dressings, and a bandage. The dressing was changed immediately if soiled. The stitches were removed six days after operation. There was but slight rise of temperature the day or two following the operation, and recovery was usually rapid and without complications.

The Mortality in Two Thousand Six Hundred and Fifty-eight Cases of Diphtheria treated in the Surgical Clinic of the University of Berlin. (*Archiv für klinische Chirurgie*, vol. xlix., No. 4, 1895.) By V. Hirsch, M.D.

Of the two thousand six hundred and fifty-eight cases of diphtheria treated in the past ten years in this hospital, one thousand three hundred and ninety-six, or 52.5 per cent., died. The greatest mortality was seen in the winter months; the greatest frequency was in October, while the least was in June. The age of the child alters the prognosis, the mortality being greater the younger the child. The operation of tracheotomy was performed in all cases in which there was marked interference with respiration. No child was allowed to die of suffocation through a stenosis of the larynx. The operations were sometimes done when there was but little hope and the patients had already become cyanotic. Of the two thousand six hundred and fifty-eight cases, one thousand five hundred and fifty-four were operated upon, with a mortality of 68.7 per cent. in those not operated upon. This percentage compares very favorably with statistics previously published, in which the average mortality after operation was 73.3 per cent. The greater mortality was found to be in the first two years of life, and yet the results obtained in four hundred and seven cases in which the operation was performed in children under two years of age was not bad. Twenty-five of those who were so dangerously ill that they would certainly have died without operation and who were moribund at the time of entry into the hospital recovered. In reference to the complications of nephritis and scarlet fever, the statistics show that the prognosis is always bad in cases complicated by nephritis, while that of scarlet fever, though slightly better, is not good. In two hundred

and twenty-eight cases complicated by scarlet fever only eighty-five, or 37.2 per cent., required tracheotomy. The statistics show that the later the children came under treatment the worse was the prognosis.

Splenectomy for Echinococcus Cyst of the Spleen. (*Deutsche medicinische Wochenschrift*, July 11, 1895.) By E. Hahn, M.D., of Berlin.

S., a woman from Berlin, aged thirty-five, had suffered for the past eight years from joint rheumatism. She had given birth to eight children, and had aborted twice. During her last pregnancy œdema of the lower limbs was present, which afterwards disappeared. Soon after the birth of the child the patient noticed a swelling in the left side of the abdomen, which grew rapidly. Her strength began to fail. Heart's action arhythmical, slight systolic murmur at the apex. Lungs normal. Urine free from albumin. Uterus and adnexa normal. There could be felt in the left side an easily movable tumor, the size of a child's head, extending from the brim of the pelvis to beneath the ribs, but not beyond the umbilicus. The tumor fluctuated on pressure, and the lower edge of the spleen could probably be defined. An operation was performed on February 5, 1895, about three months after the appearance of the tumor. A large incision was made in the linea alba, half above and half below the umbilicus. The tumor was drawn out through the wound and was found to consist of a cystic degenerative spleen. The convex surface was composed of thin splenic tissue, the upper and lower border showing the splenic tissue more plainly. The cyst lay in the centre of the spleen, growing especially towards the concavity, and making a tumor half the size of a child's head. There were no adhesions; the vessels entering at the centre were well developed, and were tied in several places with fine silk. The peritoneum was sewn with catgut and the external wound with silk sutures. The spleen with the tumor weighed eight hundred and fifty grammes; length, twenty-six centimetres; breadth, eleven centimetres; thickness, twelve centimetres. The blood-counts gave 4,500,000 red blood-cells in a cubic millimetre, the whites being in proportion to the red as 1 : 160. No fever and but slight bad after-effects were noted from the operation. A pleurisy developed which quickly healed. On April 3, when the patient was discharged as cured, she had regained the weight which she had lost after the operation. Red blood-cells, 4,975,000; white to red 1 : 323. During this time swelling of the thyroid gland or of the lymph-glands was not noticed. When last seen, on June 6, the woman felt well, the red blood-cells were 4,408,333 in the cubic millimetre; the white to red 1 : 610.6.

There are six other cases collected from the literature which were operated on by Koeberle (death), Von Bergmann (cure), Durante (death), Mas (cure), Novarro (cure), and Snegirjeff (cure). The two cases which died had strong adhesions to the neighboring organs, while the five which recovered showed few or no adhesions. The four cases of blood-cysts

found in literature all recovered; this would make a mortality of eighteen per cent. for these two conditions.

Perforated Gastric Ulcer.—Curt Pariser (*Deutsche medicinische Wochenschrift*, July 11, 1895) has tabulated forty-three cases, with ten cures, in which operative measures were taken after perforation of a gastric ulcer. The ten cures were effected by the following surgeons: Taylor, Hensner-Kriege, Morse, Maclaren, Michaud, Roux, Nicholson, Morris, Hastings-Gilford, and Bennet. The ulcer was situated twice on the lesser curvature, six times on the posterior wall, and twenty-two times on the anterior wall of the stomach. Eighty-six per cent. were in women. The operation should be performed within at least ten hours after the perforation has taken place.

NEUROLOGY.

IN CHARGE OF LANDON CARTER GRAY, M.D.,
New York City,

GUY HINSDALE, M.D., Philadelphia, AND WILLIAM BROADDUS PRITCHARD, M.D., New York City.

Syringomyelia.—Professor Raymond, the successor of Charcot, demonstrated in his closing lecture at the Salpêtrière, Paris, June 28, 1895, an unusual case of syringomyelia. The patient presented the Brown-Séquard symptom-complex. The upper and lower extremities of the left side of the body were paretic, the objective sensation was not altered, and the arm of this side was considerably smaller than that of the other. In the right half of the body in both limbs the sensation for touch was not changed, whereas for pain, heat, and cold a great difference from the normal condition was noted. The disease had been gradually developing for twenty years. There was no history of syphilis. Paræsthesia had existed in all the extremities, but the disturbance of motion was clearly limited to the left side; on the contrary, the change in sensation peculiar to syringomyelia was only found on the right.

The sympathetic nerve of the neck was involved on both sides, more, however, on the right. Double myosis, ptosis of moderate degree, and retraction of the eyeballs were noticed. The ear on the left side was of a much deeper color than that on the right. Several cases of one-sided syringomyelia are on record, but the symptom of Brown-Séquard is unusual in such conditions.

As a complement to the above Professor Raymond also showed a case of syringomyelia affecting the base of the brain, and giving rise to attacks of vertigo of a most painful type, and the Argyll-Robertson pupil.

Schlesinger, in Vienna, has already described the occurrence of this condition of the pupil in syringomyelia.

Experimental Inquiry upon the Afferent Tracts of the Central Nervous System of the Monkey. (*Brain*, Part lxix.) By F. W. Mott, M.D., of London.

In a series of fourteen experiments on monkeys the author has derived some very important facts. The column of Goll, according to him, is composed chiefly by the fifth, sixth, and seventh subthoracic roots, and few fibres enter this column above the fourth subthoracic. After uncomplicated, unilateral section of a large number of posterior roots there is no degeneration in the opposite posterior column. This is opposed to the report of Oddi and Rossi and Löwenthal. When the nucleus of Goll is destroyed the degenerated fibres extend in the fillet as far as the optic thalamus and not beyond; thus confirming the opinion held by Dejerine from the study of secondary sclerosis in man, and by Von Monokow from experiments on animals. After unilateral section of roots, degenerated fibres were found in the opposite antero-lateral column, but, as such fibres were not always present, he attributes their origin to cells of the gray matter of the same side as the lesion, and he thinks that these cells have been damaged by vascular changes in the gray matter, as a result of the operation; he does not believe that any long ascending fibres in the antero-lateral columns, or the posterior column of the opposite side, arise directly from posterior roots. After median longitudinal section in the lumbar region for three-quarters of an inch he has found a symmetrical degeneration in the antero-lateral tract of the two sides. There are two sets of fibres here, one of which can be traced to the vermis, the other (column of Gowers and Edinger) to the corpora quadrigemina. Experiment has shown that this tract of Gowers and Edinger has probably nothing to do with the conveyance of faithful impressions. One-sided or double division of the antero-lateral portions of the cord produces no obvious effect on sensation. The function of this tract is unknown.

Diaphragmatic Phenomenon in Paralysis. (*Gazette Médicale de Paris*, June 1, 1895.)—Féré calls attention to the diaphragmatic phenomenon of Litter, which consists in a diminution of the amplitude of the *onde* diaphragmatic on the paralyzed side of hemiplegics. This is even more marked in the case of infantile hemiplegia, where the author has demonstrated its presence in thirteen cases; there may be at the same time a diminution on the opposite side.

Thomsen's Disease; Report of a Case, with Autopsy. (*Revue de Médecine*, March 10, 1895.)

Professor Dejerine of the Salpêtrière, Paris, and his former interne, Dr. Sottas, have given an important contribution to medical literature in the report of the first autopsy ever made in the disease described by Thomsen in 1876. It is well known that Thomsen observed the symptoms in

himself and several members of his family. From time to time fragments of muscles excised from the living person have been examined.

In 1886, Erb described the peculiar electric reactions which he had observed. The disease is characterized by an augmentation of the muscular masses, with disturbance in the voluntary movements. The power of the muscle is not in proportion to its development, and at the moment of contraction a rigidity is produced which interferes with the movement. Once the contraction is effected it persists a certain time and offers a resistance to antagonistic movement. The electric examination shows an exaggeration of the faradic and galvanic excitability of the muscles, with a tendency to reaction of degeneration. Erb has described undulatory contractions persisting after closing the galvanic current, which pass from the negative pole to the positive,—his myotonic reaction. The reaction of the nerve-trunks is normal. Usually the disease begins in infancy, and is found in several members of the same family.

The case published by Drs. Dejerine and Sottas answered the accepted description of the disease. A brother and sister were free from all symptoms. From early infancy the patient was weak in the lower extremities, and as he advanced in years this weakness became more marked; however, as he approached his twentieth year he acquired sufficient force to perform a fatiguing occupation. At the age of thirty-two his lower limbs were developed to an abnormal degree, whereas the upper might have escaped observation as being pathological; and the symptoms of the disease were well marked. He died at the age of thirty-seven from acute nephritis. It is difficult to determine in this malady the progress of the muscular alteration. In the muscles of the superior portion of the body the changes were less; it is logical, therefore, to seek here the primary lesions. A nuclear hyperplasia seems to be the first stage; this was found in the muscle of the tongue, which was free from all other alteration, and here the indications of active cell-division were observed. The muscular parenchyma was swollen, and presented a hypertrophy *en masse* of the fibre. This hypertrophy tended to efface the angles of the outlines and to give a rounded appearance to the fibre. Later when further alterations occurred the fibre was found more irregular. The longitudinal striation often failed, whereas the transverse was perhaps even exaggerated. The hypertrophy was especially noticed in the muscles of the calf. The protoplasm, which in the normal condition surrounds each muscular fibrilla, was highly developed in certain fibres. In some cases vacuoles were found. The muscular tissue, either swollen and homogeneous or else divided by the development of the interfibrillary protoplasm, later underwent further modifications. In some regions it was divided into blocks more or less separated and free in the dilated sheaths, at other locations it suffered a fine disintegration, which was more frequently found in the centre of the fibre and gave rise to vacuole formation. In other spots the non-specialized protoplasm predominated, and at times formed balls at the periphery of the fibre.

In more advanced changes the entire contents of the sheath were disintegrated and only fragments of protoplasm were left.

The connective tissue remained inactive, except where it developed in order to fill the spaces left vacant by loss of muscular parenchyma ; it was never the seat of an active hyperplasia. The nuclei were rare. In the cord, roots, and nerves no pathological changes were noted.

The authors call attention to the fact that those muscles which are more liable to excessive exercise, as those of the calves, are the ones that suffer the greatest hypertrophy. The histological examination in this case, while coinciding with the description given by Erb of the examination of fragments of muscles removed from the living being, presents still new features. The absence of hypertrophy of the muscular fibre at the very beginning of the lesion, at the period when the hyperplasia of the nuclei has begun, likewise the hypertrophy in those muscles most used, give ground for supposing that this enlargement is due to abnormal functional activity.

The integrity of the nervous system places the disease among the primitive myopathies. W. G. S.

Three Cases of Chronic Abscess of the Brain. (*Medical News*, July 27, 1895.) By J. T. Eskridge, M.D.

The three abscesses in the right cerebral hemisphere in each case, all occupied nearly the same position in the centrum ovale, were all attended with left lateral homonymous hemianopia, with great weakness of the left arm and leg, the loss of power being greater in the leg than in the arm, the face escaping almost entirely, and with sensory impairment on the left side. The infective material in two was probably derived from distant suppuration, and in one from an injury of the scalp, although the incomplete post-mortem examination renders this uncertain.

A New Theory of Sleep. (*Medical Record*, August 3, 1895.) By Ramón y Cajal.

This author maintains that while nerve-cells do not have amœboid movements, there are scattered richly throughout the brain tissues other cells known as neuroglia cells which do possess this power. These are cells with very numerous fine processes, and they form in a large measure the supporting framework of the brain tissue, sending their fine processes in among the nerve-cells and blood-vessels. Cajal's theory is that these neuroglia cells during repose extend or relax their fine hair-like processes. As the result of this the perfect contact between the processes of the nerve-cells and the end-brushes from the axis cylinders that surround them is interfered with, hence the brain function is slowed up and sleep ensues. During activity these neuroglia cells retract their numberless fine processes, the contact between the nerve-cells becomes perfect again, and mental functions are resumed. The practical facts upon which Cajal bases this ingenious theory are that the neuroglia cells are found to be in different

states. In some their processes are retracted and shrivelled and in others they are extended. There is unquestionably an amœboid movement, therefore, in this class of cells. Furthermore, it is in accordance, he says, with physiological facts that a cell would retract its processes during activity and relax them during repose. The physical basis of sleep, therefore, according to this view, would be the bristling up of the hair-like processes of the neuroglia cells, a squeezing of them in between the machinery by which the nerve impulses pass, and a sort of clogging of the psychical mechanism.

Four Cases of Friedreich's Ataxia. (*Medical Record*, July 20, 1895.) By Sidney I. Small, M.D.

Three of the cases have been for a number of years inmates of St. Mary's Hospital, Saginaw, Michigan, the fourth is living in Essexville, of the same State, in which place all the children were born. The father, a stout, strong man, was a native of Holland, and came to America at the age of twenty-five. He died at sixty-one of gastric cancer. The mother was a French Canadian who died at thirty-eight of blood-poisoning, the result of vaccination. The children of these parents are two sons, aged twenty-five and twenty-four, and two daughters, aged twenty-six and twenty-two. In the first case station was affected at about the age of nine and gait at thirteen ; at nineteen she took to crutches, but after four months had to abandon them for an arm-chair. In all the cases the symptoms came on at about thirteen or fourteen. Scoliosis is present in the two eldest. The patellar reflex is absent in three. In the third case there is a slight oscillation of the head which is increased by conversation or excitement. In the first two cases, particularly, the speech is slow and unsteady. There is hyperextension of the thumb in all the cases. In none of them has there been pain, anæsthesia, or girdle sensation. Nystagmus has not appeared as a prominent symptom. In three cases some atrophy of the optic nerve is present.

Insanity cured by Removal of a Fibroid Tumor of the Ovary. (*Southern Medical Record*, July, 1895.) By Emory Lanphear, M.D.

The patient, aged thirty-six, was married at twenty and had four children. For several years she had had a slowly-growing, small, very hard tumor in the pelvis, which pressed upon the bladder, causing marked vesical irritation. For more than a year this tumor seemed to generate serious disturbance at the menstrual periods, and finally typical menstrual mania developed about January, 1891. The attacks became so severe and so long-continued that she became dangerous and was admitted to a hospital for the insane. No proper treatment was here instituted, but on being transferred elsewhere cœliotomy was performed and a true fibroid of the ovary, measuring two and a half by eight inches, was removed from the right side. The left ovary was also removed with its tube. The maniacal excitement returned at the next period, her mind not being exactly right at

any time. The attack lasted for four or five days, followed by quiescence until the next period, when a milder attack ensued; and so the case progressed until in nine months she was discharged and for three years has remained well.

The Formation of the Column of Goll and its Freedom from Endogenic Fibres. (Society of Biology, June 15, 1895.) By Professor Dejerine and Dr. Sottas.

The column of Goll contains no fibres which have their origin in the spinal gray matter; those which compose it come from the posterior roots, and only at the superior part of the lumbar cord begin to associate themselves for the formation of this column. The fibres which enter it at higher levels do not mingle intimately with those which have come from more inferior regions,—they are simply added to those already existing there. This column sends forth fibres, but receives no short ones. These convictions depend upon certain cases which have been examined, among which three have been chosen for demonstration. In the first, a compression of the cauda equina, due to fracture of the inferior vertebræ and luxation of the sacrum, had destroyed all the spinal roots as far as the fourth lumbar inclusive. The sclerotic condition in the column of Goll was preserved in the same intensity of degeneration at all levels. The zone was diminished in extent in its ascent, but contained no new sound fibres. This proves that the degenerated area only consists of long fibres of the diseased lumbar and sacral roots. The second case was similar to the first. The third was the most demonstrative of all. A transverse syphilitic lesion in the dorsal cord, reaching as high as the third dorsal root, had produced a sclerosis of the column of Goll, which occupied its entire area, and left not a single sound fibre in it at any level above the lesion. The gray substance in this region, however, was intact. Therefore, as the secondary degenerated area of Goll's column preserves its intensity of alteration in all parts of its course, it seems certain that this column receives neither descending posterior root collaterals nor endogenic fibres. Such collaterals remain in the column of Burdach. The endogenic fibres of the posterior cord are found in the zone adjoining the base of the posterior horn at all levels of the cord; in the median zone of the lumbar cord where Goll's column does not yet exist, and in the internal portion of Burdach's column in the cervical and dorsal regions. W. G. S.

Spastic Cerebral Diplegia.—Professor Oppenheim a short time ago presented in Berlin a mother and child afflicted with spastic cerebral diplegia. The trouble in the mother dated from early infancy, involving the four extremities, the trunk, and head. She would speak and swallow only with great difficulty. The child was not as seriously afflicted. There must be in both patients congenital lesions of both cerebral hemispheres, involving especially the motor regions.

OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF RICHARD C. NORRIS, M.D.,

Lecturer on Clinical and Operative Obstetrics in the University of Pennsylvania; Obstetrician-in-Charge, Preston Retreat; Visiting Obstetrician, Philadelphia Hospital; Gynæcologist, Methodist Episcopal Hospital; Consulting Obstetrician and Attending Gynæcologist, Southeastern Dispensary and Hospital for Women and Children.

Relation of Lithæmia to Diseases of the Pelvic Organs in Women. (*Annals of Gynæcology and Pædiatry*, June, 1895.) By Matthew D. Mann, A.M., M.D., of Buffalo, New York.

The urinary, alimentary, and genital organs situated in the female pelvis are intimately associated in function as well as in position. The relation of position may be demonstrated by the course of gonorrhea, which may infect the urinary tract, even as far as the kidneys, and the rectum, as well as the genital canal. This is also true of septic disease, though to a less degree. Through the nervous and vascular connections, the secretions of the different glands found in or connected with these organs may be more or less reciprocally affected. The victims of morbid conditions depending on the close interdependence of function and disease in the nearly associated pelvic organs complain of many symptoms, subjective and objective. They tell us of pains and aches in various places, many of which we call reflex. They complain of menstrual disturbances, vaginal discharges, backaches, and frontaches, troubles with the bladder and rectum. They suffer from insomnia and dyspepsia; and, above all and before all, they tell us that they are nervous. Often the spirits are depressed, and there is sometimes a fear of impending insanity; headaches, especially occipital, and intercostal neuralgia are common. A physical examination often shows no serious lesion of the pelvic organs. An examination of the urine will give much information; usually the quantity is below the normal, the reaction excessively acid, and uric acid is present in abnormally large quantities. At times the urine will be clear, limpid, and of low specific gravity. The blood also should be examined, for anæmia is one of the most important associates or causes of excessive uric acid output. In cases presenting these combinations, the question to be decided is whether the trouble is primarily with the uterus and ovaries, and all the rest reflex or secondary, or *vice versa*. It is possible to group such cases under the term lithæmic or under the term uric acid diathesis; but the best plan is to consider them as cases of general disturbance of nutrition, and then we shall be forced to study each case to find out exactly the origin of the disturbance. The pelvic lesions may be the cause or they may be the result. We can get more help in understanding these cases by remembering the close relations which exist between the circulation of the pelvis and that of the liver; also by remembering the dependence of the kidneys upon the proper performance of the functions of the stomach and liver; and again, by remembering the intimate nervous connection between the uterus and these other organs. If the trouble starts

in the stomach from an error in diet, or from overwork or nervous strain, there result imperfect metabolism of the food products, the formation of poisonous substances, the imperfect action of the skin, kidneys, liver, and bowels, failure to excrete the toxines, and the production of an auto-intoxication resulting in nervous and functional disturbances. This train of events, slightly modified, may be due to an abnormal urine, to rectal disorder, or to primary uterine disorder. The special causes will be found in the climate, diet, social condition, the wear and tear, the hurry and rush, and the fatigues and strains of modern life. The influence of dress has an important place in the causation of these conditions, and any garment that produces even moderate waist-constriction should be discarded.

Renal Insufficiency in Gynæcological Cases. (*Chicago Medical Recorder*, July, 1895.) By J. H. Ethridge, M.D.

Attention is called in this article to the close relation existing between renal insufficiency and pelvic disorders. As the mesoblast in the ovum gives rise to both the urinary and the generative organs, it is an easy matter to infer that derangements in one set of organs can produce, or at least are very frequently associated with, derangements of the other. Observation shows numerous cases of coexistence between renal insufficiency and neuralgias, mucous membrane disorders, and serous membrane inflammations, and one cannot but question the possibility of this insufficiency producing or permitting amenorrhœas, dysmenorrhœas, leucorrhœa, and attacks of pelvic peritonitis; for it is a matter of daily observation to see gynæcological patients with renal insufficiency who present these disorders, and also neuralgias, dyspepsias, bronchitis, cutaneous eruptions, headaches, backaches, nervousness, and insomnia.

The normal excretion of urinary solids in human beings, weighing from ninety to one hundred and eighty pounds, varies from five hundred to eleven hundred grains daily, as shown by the following table:

Weight.	Urinary solids.	Weight.	Urinary solids.
40 pounds	392 grains.	130 pounds	1028 grains.
50 "	479 "	140 "	1078 "
60 "	563 "	150 "	1150 "
70 "	639 "	160 "	1198 "
80 "	716 "	170 "	1237 "
90 "	789 "	180 "	1260 "
100 "	854 "	190 "	1300 "
110 "	916 "	200 "	1330 "
120 "	974 "		

A simple formula for estimating the solids of the urine is that known as Haines's modification of Haeser's method. It is this: multiply the last two figures of the specific gravity of the urine by the number of ounces voided in twenty-four hours and the product by one and one-tenth.

Women passing only fifty per cent. of the normal amount of urinary

solids are extremely numerous. If only four hundred grains are excreted daily, various degrees of nervous irritation are presented; if this amount is diminished to two hundred grains, the nervous system is very seriously invaded; and if still further diminution occurs, say to one hundred grains per diem, the patient will be found dangerously near the verge of uræmic convulsions, the condition not infrequently found in the last weeks of gestation. Appropriate remedies used in these cases increase the amount of urinary solids and the urgent symptoms subside. From the fact that many gynæcological cases are relieved by including in the treatment remedies that increase the urinary solids, the conclusion cannot be resisted that cause and effect actually exist between many of them, and the deficiency of urinary ingredients.

The Danger of Morphia in Gynæcological Practice. (*British Gynæcological Journal*, May, 1895.) By H. Macnaughton Jones, M.D.

The question of morphia administration in women is considered from the following points of view: the influence of temperament on its action and effects; our knowledge of its physiological and psychical influences; the precautions to be observed in its exhibition.

It has been clearly proved by a number of observers that what we understand by the hysterical temperament occupies the foremost place in the causation of morphiomania. Hysteria, neurasthenia, neuralgia, cephalalgia, ovarian crises, dysmenorrhœa, spinal neuropathies, neuromimesis, are the correlated conditions, often associated with sexual disturbances, which stand in the forefront in the etiology of morphia abuse in women. And they are the very conditions for which it is most frequently prescribed. The physical and psychical states associated with pregnancy excite a craving for the effects of morphia and its continued use.

Apart from the narcotic effect of morphia in assuaging pain its effects on a neurotic person may be summarized as follows:

Following the injection there is a period of repose and of pleasurable sensation. The pulse is stronger and the breathing freer. The duration of this period is variable and is diminished as the injections are increased. The periods of depression are then intensified as the quantity of morphia is increased, complete reaction to the previous exhilaration follows, loss of nerve-control takes place, and a craving for the stimulus is again excited. Other troubles associated with morphinism are disorders of digestion and dyspepsia, constipation, vesical irritation, visual disturbances, lessened reflexes; rotary oscillations of the arms, defects of memory and moral perversion, psychical apathy, and interference with the metabolic functions of the liver through its influence on its glycogenic function. But what concerns us more especially is the influence exerted by the morphia habit on the catamenial function,—namely, arrest of the same, constant irregularity or complete suppression which causes sterility. There is also a tendency to abortion and a lowering of the vitality of the embryo.

The moral of this paper is that there is a responsibility attached to the employment of morphia for the relief of pain in the affections of women, not sufficiently recognized in practice. This responsibility imposes on the physician the duty of differentiating those cases in which morphia may almost certainly be given with immunity from its toxic affects, from those in which the risk of intoxication by its repeated use is great. Under no circumstances should the patient be permitted to inject herself, and only under very exceptional circumstances should friends do so.

On the Use of Local Bloodletting in Gynæcological Cases. (*London Medical Times and Hospital Gazette*, July 6, 1895.) By Bedford Fenwick, M.D.

The author believes that local bloodletting is a most important and powerful remedy in certain gynæcological cases. The local abstraction of blood can be attained by using leeches or by scarification. The first method he has used chiefly for external application on the abdomen or around the anus. He considers leeches as objectionable for use on the cervix, not only because they draw very little blood and leave a wound which heals badly in some persons, but because there is danger of their entering the uterus, and they may even pass through the Fallopian tube into the abdominal cavity. Scarification of the cervix is a simple and safe procedure. The following practical points are insisted upon: in long-standing congestion the mucous membrane and its subjacent tissues are almost always hardened and thickened, and the punctures should be made more deeply and more freely than usual to make the blood flow. The knife-edge should be very sharp or the necessary pressure may send the knife deeper than desired. The patient should be warned not to move. The punctures should be confined strictly to the cervix.

Cases are cited which show the relief afforded by this operation. The following conclusions are drawn:

1. That where the cervix uteri is deeply congested, deep red, bluish, or purple in color, local depletion by scarification generally gives immediate relief.

2. That where this congestion is caused and kept up by flexion of the uterus obstructing the return of the venous blood from the cervix, and causing chronic enlargement of the uterine veins generally, local depletion allows a pessary to be inserted with safety and comfort to replace the organ, which almost certainly could not otherwise be tolerated.

3. That in every case, of course, the possibility of the patient being pregnant would be investigated before scarification were attempted.

4. In cases of subacute ovaritis or obscure throbbing pain in the pelvis, cupping or leeching externally frequently relieves the patient immediately.

5. In cases of vaginismus from inflamed hemorrhoids or other rectal congestive conditions, leeches round the anus give rapid relief or cure.

6. That with the precautions I have enumerated scarification is the simplest and safest method of abstracting blood from the cervix, leeches or cupping being kept for external use only.

PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,
Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas,
AND
HENRY W. CATTELL, A.M., M.D.,
Demonstrator of Morbid Anatomy in the University of Pennsylvania; Prosector to the American Anthropometric Society; and Pathologist to the Presbyterian Hospital, the Institution for Feeble-Minded Children at Elwyn, etc.

The Poisonous Principle of Cholera and its Antitoxin. (*Deutsche medicinische Wochenscrift*, July 18, 1895.) By Behring and Ransom.

Ransom, following out a series of experiments suggested by Behring concludes:

1. It is possible to secure from cholera cultures a fluid which is in the possession of specific poisonous properties.

2. The disease-phenomena which this fluid gives rise to when introduced into a susceptible animal are similar to those which follow the introduction of the living vibrios of cholera.

3. From this fluid there may be obtained a definite, solid body, the action of which is similar to the fluid from which it has been obtained.

4. Animals which are susceptible to cholera can be treated with the cholera poison, which, prepared in the same way as the antitoxic serum of diphtheria, gives a serum which is antidotal both to the cholera poison and to the living cholera organisms.

Formol. (*Bulletin de la Société anatomique*, December, 1894.) By René Marie, M.D.

This author advises for the purpose of hardening nervous tissues that the cord be placed in seven hundred to eight hundred cubic centimetres, and the brain in two litres of a one-per-cent. formol solution for four to five days, when the sections can be prepared. Ranvier's picro-carmine method acts slowly and poorly. The osmic acid and tannin stain of Azoulay gives good results. In order to stain with Weigert's or Pal's methods, the sections are placed for a short time in chromic acid.—*Neurologisches Centralblatt*, May 15, 1895.

Infection by the Proteus Vulgaris. (Société de Biologie, *Mercredi Médical*, June 19, 1895.)

Charrin found, in a purulent pleurisy of great severity in a woman who had recently given birth to a child, pure culture of the proteus vulgaris.

He considers that it should be classed among the pathogenic microbes, as such properties have been ascribed to it in abscesses, angiocholitis, etc.

Lesions of the Nervous System in Osteitis Deformans, Paget.

MM. Gilles de la Tourette and Marinesco have given to the Société Médicale des Hôpitaux de Paris, June 28, 1895, a report of the involvement of the nervous system in a case of osteitis deformans of Paget. The nerves, especially the sciatic, were considerably increased in volume, due to an interstitial neuritis, probably of vascular origin.

In the cord the lower dorsal region showed a decrease in number of the fibres, in the median portion of the posterior column and in the posterior root zone, with a proliferation of the neuroglia. The anterior and posterior horns, as well as the roots corresponding, were not affected.

A Case of Typhoid Septicæmia associated with Focal Abscesses in the Kidneys, due to the Typhoid Bacillus. (*Journal of Pathology and Bacteriology*, April, 1895.) By Simon Flexner, M.D., of Baltimore.

The distribution of the typhoid bacillus in the body in cases of typhoid fever still presents interesting features. The finding of the typhoid bacillus in the mesenteric glands, spleen, liver, and kidneys, in the bile and bone-marrow, and in the blood of the fœtus, would indicate that it had at some time during the course of the disease been present in the blood-current. The recent contributions to the study of the relation of the typhoid bacillus to local foci of inflammation have tended to show that in a variety of inflammatory processes the typhoid bacillus alone is concerned. The case under consideration presented the clinical features of typhoid fever on first observation; but later certain symptoms intervened which led to a suspicion of cerebro-spinal meningitis. On the day of death a soft swelling, which was not painful, was noticed in the left parotid region. The interest in the autopsy lies in the state of the kidneys, both of which are enlarged and pale, and present numerous whitish nodules, larger than miliary tubercles. These nodules are noticed both beneath the capsule and on cut sections of the organ, and are larger in the right than in the left kidney. Cultures made from these areas show the presence of typhoid bacilli, and this organism may also be demonstrated in the intervening kidney substance. The parotid gland is infiltrated with pus containing streptococcus pyogenes. Typhoid bacilli were subsequently obtained in cultures made from the bile, spleen, mesenteric glands, bone-marrow, lungs, and heart's blood. The presence of typhoid bacilli in these situations is undoubted, and these organisms were differentiated from the bacillus coli communis, which was also present in some of the cultures, by the failure of the former to produce indol in cultures, by their failure to ferment sugar, by their failure to coagulate milk, and by the yielding of an alkaline reaction by their development. Their growth was also observed upon different solid culture media and they were studied microscopically.

A Rapid Method of Making Permanent Specimens from Frozen Sections by the Use of Formalin. (*Johns Hopkins Hospital Bulletin*, April, 1895.) By Thomas S. Cullen, M.B.

The entire process is as follows:

(*a*) Place the frozen section in five-per-cent. aqueous solution of formalin for three to five minutes.

(*b*) Leave in fifty per cent. alcohol three minutes.

(*c*) In absolute alcohol one minute.

(*d*) Wash out in water.

(*e*) Stain in hæmatoxylin for two minutes.

(*f*) Decolorize in acid alcohol.

(*g*) Rinse in water.

(*h*) Stain with eosin.

(*i*) Transfer to ninety-five per cent. alcohol.

(*j*) Pass through absolute alcohol, then through either creosote or oil of cloves, and mount in Canada balasm.

By fixing the specimen in formalin before it is frozen the blood may be preserved. This process requires at least two hours. A small piece of the tissue is placed in a ten per cent. solution of formalin and allowed to remain for two or three hours. It is then put on the freezing microtome and cut into thin sections. The great advantage in this method is the prevention of the contraction of the tissues, such as takes place when frozen sections are passed through alcohol.

Bacterial Absorption from Recent Wounds. (*Fortschritte der Medicin*, April 1, 15, and 29, 1895.) By C. Schimmelbush, M.D., and A. Ricker, M.D.

The authors made researches directed towards proving at what period of time organisms could be found in the blood-stream and various viscera.

White mice were inoculated near the tails and were killed at varying periods of infection. The organs were removed with sterilized instruments, chopped up, and portions of them placed in nutrient materials. The organisms present underwent development, and thus gave a measure of the amount of absorption of the microbes. In the first experiment, ten white mice were employed and were inoculated with a spore-containing anthrax culture, the wound involving the skin, deep fascia, and the muscles at the root of the tail. In all but one case organisms were found in the lungs and liver after an interval of half an hour; and in one case they were found in the lungs, liver, and kidneys within that time. Four rabbits were then treated in a similar way by infecting a deep muscular wound; they were killed at varying intervals up to three and a half hours, but in none of them were organisms found in the viscera.

Another set of experiments was undertaken in which the subcutaneous tissues were alone infected. In ten cases an anthrax culture was applied to a subcutaneous wound without touching the skin, the animal being sub-

sequently killed, and the organs examined as before. No organisms were found except after an interval of four hours. After subcutaneous injection of the spores, however, the bacteria were found to be disseminated through the system in two hours.

Further observations were made by implanting portions of the internal organs of an anthrax-infected mouse in the bodies of other mice, and noting the progress of infection at varying intervals. After one hour and a half, no result followed, except in a few cases where suppurative organisms had also gained entrance; but after two hours and three-quarters, three, and five hours, anthrax bacilli were always found, although the clinical course of the case was considerably modified, owing probably to the bacilli being enclosed in the ingrafted tissue. Finally, experiments were made with a number of different forms of bacteria, in order to ascertain whether the nature or the size of the organisms had any influence on the rapidity of absorption, but in every case there was very rapid absorption of the microbes.

Bacteria are thus proved to follow the course which is taken by such bodies as Indian ink or globules of fat. Lymphatic absorption of bacteria has long been recognized; now we have it authoritatively shown that they are also disseminated actively along the blood-vessels.—*London Practitioner*, June, 1895.

Modern Difficulties in Bacteriological Diagnosis. (*Montreal Medical Journal*, November, 1894.) By J. G. Adami, M.A., M.D., M.R.C.S., of Montreal.

At a time when bacteriology has made an ample apology for its existence, it is well that one of us should pause and, as a bacteriologist, point out that matters are not quite so surely established as in the opinion of very many it would seem to be. The main problem before us at the present time is in relation to the determination of species. Take, for instance, the typhoid bacillus. If we examine the stools of a patient supposed to be affected by the disease, we may, among crowds of colonies presenting but a slight divergence from the characters usually regarded as typical of the bacillus, find some few colonies only distinguishable by the most delicate tests, but still not quite conforming to the type, and the question is, Are these colonies truly those of the typhoid bacillus, or do they represent some closely allied species? The same is true of the bacillus of cholera, of diphtheria, of pyæmia, and of pneumonia. The best field for establishing the laws of grouping is to be found in a study of the innumerable, slightly varying forms discoverable in ordinary water. Let a series of laboratories work out each one a group of microbes; one laboratory taking those producing green pigmentation, another the red pigment bacteria, and a third the bacillus coli communis, with all its varieties found in contaminated water. By this means working out a very large number of cultures, isolated from regions all over the continent, the points of resemblance and of divergence of these

cultures will best be determined. Only by this method can we establish rules of guidance to lead us out of our present difficulty.

Notes on Certain Forms of Peripheral Lesion in Infantile Paralysis. (*Canadian Practitioner*, February, 1895.) By A. Primrose, M.B., C.M. (Edin.), of Toronto.

The following peripheral lesions were found in a "dangle-leg," which had been amputated from a boy, aged thirteen, who had suffered from infantile paralysis. The muscle was very much wasted, and almost wholly represented by fibrous tissue. There was little or no fat in the substance of the muscles, and a remarkably small quantity between the muscles. The subcutaneous fat, however, was very abundant. This subcutaneous fat is probably not so much the result of an undue development as it is of a failure to atrophy. The presence of this fat produces the condition which prevents one from pinching up the skin and separating it from the subjacent structures. It would also seem to indicate that the trophic nerves to the skin lie in the posterior nerve-roots. There is a very definite atrophy in the nerves distributed to the parts, the vessels are much diminished in size, and the bone is much smaller than that in the healthy leg. In a second case, the patient, a boy, aged nine, presented hemiatrophy of the tongue with no other pathological lesion indicated. The condition is looked upon as the result of infantile paralysis affecting the left hypoglossal nerve-roots.

Pathogenesis of Simple Gastric and Duodenal Ulcers. (*Canadian Practitioner*, February, 1895.) By W. J. Greig, B.A., L.R.C.P. (Lond.), of Toronto.

Both gastric and duodenal ulcers are peptic in origin,—that is, they are produced by the action of the gastric juice on the mucous membrane. There are other factors concerned in the production of these ulcers, however, conditions which impair the integrity of the mucous membrane and allow the acid gastric juice to act upon it. Among these conditions may be mentioned traumatisms, occurring in patients whose resistance has been lowered by anæmia. A chronic condition of malnutrition of the mucous membrane, which is due to thrombosis rather than to embolism, is also an etiological factor. Hyperacidity of the gastric juice is as liable to be the result of as the cause of the condition. Ulcers of the duodenum following burns are septic in origin, and are the result of the action of the gastric juice on devitalized tissue.

The Effect of Inhalation of Oxygen upon the Hæmoglobin. (*Journal of the American Medical Association*, June 15, 1895.) By George J. Preston, M.D.

The investigation was undertaken for the purpose of finding whether or not there was any scientific basis for the many claims made for the therapeutic use of oxygen. Inhalations of pure oxygen under normal temperature and pressure cause a diminution in the number of respirations. Does

the blood become more highly oxygenated than it does when ordinary air is breathed? The capacity of serum for taking up oxygen is about the same as that of distilled water, and can be increased, under pressure, in the same manner. Experiments upon a solution of hæmoglobin show that, if a sufficient quantity of oxygen is present, each grain of the solution will take up 1.59 cubic centimetres. If there is an insufficient quantity, the hæmoglobin will not be completely satisfied. The experiments made bear upon this point. Animals were placed under a glass jar which was first filled with pure oxygen which had been washed several times, and a stream of the gas was allowed to pass into the jar from a cylinder. A sufficient quantity of caustic potash was kept in the jar to absorb all the carbonic acid. The hæmoglobin was measured by the hæmoglobinometer of Fleischl, before and after the experiments. Of seven experiments, six upon rabbits and one upon a white rat, there were two that did not show diminution in the number of respirations and rise in the percentage of hæmoglobin. Of the two failures, one was not kept in the oxygen long enough, and the other, through the exhaustion of the oxygen in the cylinder, was breathing practically atmospheric air towards the close of the experiment. In the eighth experiment, oxygen was injected into the rectum of a small dog for forty minutes. Respirations fell from 24 to 10; hæmoglobin rose from 82 to 84. Experiments on four healthy men gave the following results: Experiment 9: weight, one hundred and forty pounds; inhaled oxygen for seven minutes; hæmoglobin estimated before inhalation, 82; after, 92. Experiment 10: weight, one hundred and sixty pounds; time of inhalation, five minutes; hæmoglobin, before, 78; after, 87. Experiment 11: weight, one hundred and fifty pounds; time of inhalation, six minutes; hæmoglobin estimated before inhalation, 76; after, 83. Experiment 12: weight, one hundred and ninety pounds; inhaled oxygen five minutes; hæmoglobin estimated before inhalation, 80; after 95.

This increase in the percentage of hæmoglobin in the blood seems to be brought about by the presence of an excess of oxygen, by which all the hæmoglobin is satisfied. These few experiments, showing that the percentage of hæmoglobin in the blood can be largely increased by the inhalation of pure oxygen, justify its full and scientific trial in diseases obstructing the air-passages, and it might give good results in the treatment of certain forms of anæmia.

A Specific Reaction for Tuberculous Sputum. (*Aerzt. Runds.*, 1895, No. 6.) By Roerig, M.D.

This test depends upon the inverting power of tuberculous sputum, by which starch is changed to sugar. Healthy lung tissue destroys a small amount of starch, but does not change it into sugar. The inverting substance can be extracted with water; another substance is obtained which, when boiled with dilute sulphuric acid, reduces Fehling's solution. This substance seems to be analogous to the glucosides.

The test is made as follows: To thirty grammes of the sputum containing the tubercle bacilli thirty grammes of distilled water and one gramme of boiled starch are added. The mixture is shaken, placed upon a water-bath at 37° C., and allowed to remain several hours, or until it is evaporated to the consistency of a stiff paste. It is then tested for starch by adding a solution of iodine to a small quantity of the mixture. No blue color appears. Fehling's solution shows the presence of sugar.

Some of the cold mixture is then added to two cubic centimetres of sulphuric acid in a test-tube. A violet ring forms at the point of contact in a few minutes, and on shaking the test-tube the violet color is diffused throughout the acid. It becomes more intense on standing, and remains unaltered for several days. The reaction is more decided if a little sodium carbonate is added to the mixture.

This reaction, the author thinks, occurs only in sputum containing the tubercle bacilli, and the inverting power varies in different specimens obtained from patients in advanced stages of phthisis. The violet color can also be obtained from pure cultures of tubercle bacilli.

MISCELLANEOUS.

The Water-Supply of Philadelphia and Camden.[1] By Joseph Wharton.

It has come to be generally understood that something must be done about our municipal water-supply. For some years, despite great improvement in pumps and reservoirs and mains, the feeling has gained ground that the water is foul, disgusting, and pestiferous, and that it grows worse year by year. The Schuylkill River was originally a pure mountain stream, flowing through forests and over rocks, and its water was perfectly satisfactory. But towns grew along its banks and coal-mines were opened, so that the river became a mere sewer for a great population, besides having to carry the poisonous water of the mines and the black refuse of the coal-heaps. Large factories added their dye-stuffs and chemicals, and well-filled cemeteries contributed their drainage. The water of the Delaware River, near to Philadelphia, is worse than that of the Schuylkill, and is no longer distributed through the water-mains. The two rivers unite four miles south of Market Street and form a great tidal pool, having, except at times of flood, a very gentle movement towards the sea. This pool receives the excreta of more than a million persons, many of them diseased, besides that of a vast number of horses, cattle, and other animals, and the discharges of countless factories. The proportion of sewage to that of comparatively good up-river water in this tidal pool is as one to twelve. At this point

[1] Pamphlet published in Philadelphia, May, 1895.

we are met by the contention that, no matter how foul with sewage nor how poisonous with germs river water may be, it becomes perfectly sweet, innocent, and wholesome when it trickles through a few inches of sand. The sober judgment of nearly all the important authorities upon water-supply for cities is, however, distinctly to the effect that water contaminated by sewage can never be made wholesome by filtration, and that water into which sewage has entered should never be used for drinking, no matter how filtered. There are at present five sources from which Philadelphia can draw a water-supply: Lake Erie, the upper Susquehanna, the Delaware above Easton, the Perkiomen and Tohickon, and the sand and gravel rivers of Southern New Jersey. Among these sources, Lake Erie only can afford water permanently good without filtering; but the engineering difficulties would require a sum of money and a length of time for construction quite beyond the present views of our citizens. The upper Susquehanna appears too distant. The upper Delaware may prove scanty in after years, and though now good enough for drinking is sure to grow worse. Further, it cannot be protected from pollution by any legislation of this State, since all its upper tributaries lie in the State of New York, and all its lower course is bounded on one side by the State of New Jersey. The Perkiomen and Tohickon are totally inadequate to yield a sufficient supply, and filtering would ultimately be necessary. The analysis of the Southern New Jersey rivers gives the following parts per 100,000: total solids, 4.06; inorganic salts, 2.05; volatile organic matter, 2.01; chlorine, .06; hardness, 1.44. The water of these streams is always clear, their flow is much more uniform than that of upland streams. The water has a brownish tinge, due to the cedar swamps through which they flow, and this would be obviated by clearing away the swamps to make room for the storage reservoirs, the bottoms of which will be clean sand and gravel. The streams flow slowly; but more stir and aëration would be supplied by the pumping required. The project is to dam at or near the head of the tide the several streams forming the Mullica River; to gather their waters by back-flow into a reservoir at the village of Atsion; thence to force them farther up stream into a reservoir, having an elevation of seventy feet above the tide; thence to let them flow by gravity through a canal to a reservoir, Haddon Reservoir, at an elevation of sixty-one feet, to be formed by damming the north branch of Cooper's Creek; from the lower or western end of this latter reservoir, the water is to flow through a masonry conduit thirty-one thousand feet long and through three thousand feet of steel pipes to the bank of the Delaware River, under which it is to pass by one or more steel-lined tunnels to a point in Philadelphia near the existing Frankford Pumping Station. It would then have a pressure of about forty-six feet, which would carry it to the several pumping stations in Philadelphia, from whence it could be lifted into the several distributing reservoirs. From Haddon Reservoir a sufficient quantity of water would flow through steel pipes to a distributing reservoir for the supply of Camden. By this project three

hundred million gallons of water can be supplied daily to Philadelphia and Camden at a total cost of about fifteen million dollars.

"Cancer-Houses." (*Provincial Medical Journal*, June 1, 1895.) By A. Haviland, M.R.C.S., England.

This writer believes that soil and situation have much to do with the mortality from cancer, and his well-known collection of statistics in England and Wales shows that "cancer is most prevalent along the courses of rivers which seasonally flood their banks, and especially where, from the flatness of the country, the floods are retained." In this article he gives a series of cases cited by T. Law. Webb, in his paper on the etiology of cancer, who suggests that there are "cancer-houses" and "cancerous water or water-supplies," as well as "cancer-fields." In two houses under one roof, with a drain system and water-supply common to both, six people died of cancer in twenty-six years. In house No. 1 a man, twenty-eight years of age, died of cancer of the rectum. The house was then occupied by a man and his wife. The man died of cancer of the stomach about two years after the death of the first tenant, and ten years later his widow died of cancer of the rectum. In No. 2, at about the same time, a woman died of cancer of the breast. No. 1 was occupied later by three maiden ladies. Of these one died four years ago of cancer of the uterus, a second died last winter with all the symptoms of cancer of the stomach, and the third still survives.

In a group of twenty cottages nine cases of cancer occurred in fifteen years. All of the inhabitants use water from a certain pump by the roadside, close to a filthy hovel. One cottage furnished three of the nine cases. None of the nine people were of kin, and in no instance was there a family history of a malignant disease.

In Case 8 of the series a pattern-maker died in 1875 from cancer of the rectum, his wife died also from cancer of the rectum in 1884, and a daughter died from cancer of the breast in 1888. Drinking-water was obtained from a pump a few yards from a cesspool. In the series of ten "cancer-houses" there was a history of polluted water-supply in every instance, and of the thirty-one patients who died from cancer in these houses, in fifteen the lesion was in some portion of the alimentary tract.

The writer, while investigating the catchment basin of the river Wey in the Farnham district of the Thames basin, found one of these "cancer-houses," situated about twenty feet above the stream, in a damp sodden soil. A man aged sixty-eight, who had contracted an epithelioma of the lip while living in this house, said that his grandmother died of cancer there, then her son, and thirdly her grandson, all of whom had been operated on. He was then taken with the disease, and moved from his native hollow to one on the opposite side of the ridge, where he died last summer. Dr. Fressinger of France has reported the occurrence of a veritable epidemic of cancerous disease in a group of three houses at Oyonnax,

where four cases of cancer came under his personal observation in the space of four years. In all four patients the affections could apparently be traced to contamination with the dressings from a case of scirrhus of the breast.

Unilateral Excision of the Tongue for Cancer. — Dr. George Buchanan, of Glasgow, reports on the state of a patient thirty years after excision of one lateral half of the tongue for cancer. The operation is not advised unless the disease is limited to one side of the anterior half of the tongue and has not yet invaded the loose mucous tissue in the floor of the mouth.—*Edinburgh Medical Journal*, March, 1895.

The Work of the Sanitary Engineer in Time of Epidemics, in Time of War, and in Sudden Calamities in Civic Life. (*Sanitarian*, June, 1895.) By William Paul Gerhard, C.E.

When an epidemic threatens, the work of the sanitary and municipal engineer consists principally and first of all in measures of prevention. The problems arising in such a case demand the stricter and closer attention to the sanitation of the soil, the air, the water, the food-supply, and the dwellings of a city. In case an epidemic actually breaks out the duties of the sanitary engineer embrace, first, measures for the protection of those who are not sick, preservation of the purity of the drinking-water, watching the ice-supply, flushing and ventilating the city sewers, preservation of the cleanliness of the streets and public urinals, closing of public buildings, and the disinfection of clothing. Second, measures for the proper care of the sick : first, in order not to endanger those who have escaped the scourge; and, second, to cure those who have succumbed to it. Third, measures for the prompt and safe removal and disposal of the dead ; this is best done by cremation. The physician and sanitary engineer should work hand in hand at these times. In case of an outbreak of war, the sanitary engineer should attend first to providing proper facilities for the temporary housing of soldiers and to selecting proper sites for military camps. Second, he should attend to the enforcement of cleanliness in the camp; to the examination of the sources of water-supply; to the purification of water and to the provision of an ample supply for the troops and horses; to the drainage of the camp and the removal of waste and garbage; to the erection of latrines, and to safety measures against fire. Third, he should attend to the provision and transportation of a proper food-supply. Fourth, he should attend to the first aid to the wounded on the battle-field and at the dressing stations. Fifth, he should attend to the care of the wounded ; the erection and fitting up of temporary field hospitals and means for heating, ventilating, and electric lighting; transportation of the wounded from the battle-field; and the organization of a field ambulance service. Sixth, he should attend to the care of the sick in tent or barrack hospitals. Seventh, he should attend to the sanitation of the battle-field and to the care of dead soldiers; the cleaning and disinfection of camps, the destruction of tempo-

rary hospitals, and the disinfection of putrefying battle-fields. Many opportunities offer themselves to the sanitary engineer after sudden calamities, catastrophes, and great disasters in civic life. In order to make the most of his opportunities and to render injured persons as comfortable as possible until medical aid arrives, the engineer should know the rudiments of the anatomy and the physiology of the human body, and should be conversant with the principles of the first aid to the injured.

Infectious Diseases in Public Schools. (*Sanitarian*, June, 1895.) By Moreau Morris, M.D., of New York.

School congregations of youthful victims present fruitful fields for the development and dissemination of pathogenic germs, and epidemics of alarming proportions are apt to arise after the introduction of such germs into such a community. Preventive measures are a public necessity, and physicians and health officers are directly responsible for their promulgation and exercise. To neglect this obvious duty seems almost criminal. Among the sources of infection and contagion may be mentioned the covering of school-books with muslin, cloth, or paper; the indiscriminate use of slates, slate-pencils, lead-pencils, and pen-holders during the day, and their distribution on the following day with no attempt at cleansing; the habits of pupils of erasing slate-pencil marks with fingers wet with saliva, and of moistening the tip of the lead-pencil with saliva before using it; the storage of outer garments in closets in the class-room where they are hung in mass. As precautions may be mentioned,—

1. The great importance of the early and prompt reporting of any contagious disease, occurring in the practice or in the knowledge of any physician, to the Health Department.

2. The medical profession, so far as it is possible in their family intercourse, should impress upon the minds of their patrons the fact of the communicability of any contagious disease, however mild may be its manifestations.

3. The Board of Education should be induced to adopt suggestions relating to the care of books, slates, slate-pencils, pads, lead-pencils, and outer clothing during school sessions.

4. Children coming from infected premises should be excluded from school until thorough disinfection has been performed.

Disinfection of Tubercle-Infected Houses. (*British Medical Journal*, February 16, 1895.) By Sheridan Delépine, M.B., and Arthur Ransome, M.D., both of Manchester, England.

Since the preliminary report upon this subject was published in the November 4, 1893, issue of the *British Medical Journal*, the inquiry has been extended to other methods of disinfection, and the influence of certain natural agents on the virulence of the *bacillus tuberculosis*. Their conclusions are: 1. The disinfection of rooms which have been contaminated

with tuberculous products cannot be obtained by means of the fumigation methods such as are generally used at present. Sulphurous acid, chlorine, and euchlorine, as used under supervision by experienced municipal disinfectors, have proved practically useless. This only confirms the results obtained by Koch and his pupils in the case of a number of other organisms. 2. The only other method of disinfection which seemed to promise more satisfactory results was the direct application of a solution of chlorinated lime to the walls to be disinfected. This method has given, so far, satisfactory results, but it is attended with discomfort on the part of those who have to carry out the disinfection, though this difficulty can no doubt be overcome. It must be remembered that the experiments of Schill and Fischer are unfavorable to the use of perchloride of mercury. 3. Light is, in the case of the tubercle bacillus, as it has been proved by several observers to be in the case of other organisms, the most important natural agent.

Idiot Skulls.—Sir George Humphrey has examined nineteen specimens of idiot skulls, and finds nothing to suggest that the deficiency in the development of the skull was the leading feature in the deformity, and that the smallness of the bony cerebral envelope exerted a depressing or dwarfing influence upon the brain, or anything to give encouragement to the practice lately adopted, in some instances, of the removal of a part of the bony case, with the idea of affording more space and freedom for the growth of the brain. —*Lancet*, February 16, 1895.

FORENSIC MEDICINE.

IN CHARGE OF LORENZO D. BULETTE,
Of the Philadelphia Bar.

LIABILITY OF HUSBAND FOR MEDICAL SERVICES TO HIS WIFE LIVING APART FROM HIM BY AGREEMENT.

The law is settled that a husband must provide his wife with necessaries, in which category are included medicines and medical services. But, where a husband and wife were living apart under an agreement the terms of which required him to pay her fifty dollars a month for her support, and a physician,who had no knowledge of such an agreement or that they were thus living apart, rendered medical services to the wife at her request, sufficient doubt was created as to the liability of the husband in such case as to render it desirable to have the opinion of the Supreme Court thereon.

The action[1] was brought by the physician against the husband to recover compensation for medical services rendered to the defendant's wife at her request. The trial court, on the evidence submitted, instructed the jury to find for the defendant. To this instruction the plaintiff excepted; and, on appeal, the following facts appeared in the certificate.

"Is a husband liable for medical services rendered by a third person to his wife at his wife's request, where the husband and wife have, previous to the rendering of said services, entered into a contract whereby the husband agrees to pay his wife fifty dollars per month for her support and maintenance and all family expenses, where the husband and wife, by mutual agreement, are living separate and apart, and where said amount is fully paid by her husband."

To this the Supreme Court said, "It is not questioned but that, in the absence of the agreement between the defendant and his wife, the defendant would be liable for the services sued for. The defendant and his wife were, by mutual agreement, living apart, and, while so living, agree that the defendant shall pay, and that she will receive, fifty dollars per month for her support and maintenance and family expenses. The plaintiff, without, so far as the certificate shows, any knowledge that they were living apart, or of said agreement, rendered medical services to the wife at her request. Conceding that the agreement was valid and binding between the defendant and his wife, it certainly was not as to the plaintiff, under the facts presented in the certificate. It may be said that we should look to the facts proven to see what questions are involved, but not so. We look to the record to see that the questions certified are involved, but not for the questions not certified. Whether or not the plaintiff would be bound by the contract between the defendant and his wife if he knew thereof before rendering his services, or by notice from the defendant that he would not be responsible for bills incurred by his wife, we do not determine, as that question is not certified for our determination. Our conclusion is that the question must be answered in the affirmative."

BOOK REVIEWS.

THE YEAR-BOOK OF TREATMENT. A Critical Review for Practitioners of Medicine and Surgery. Philadelphia: Lea Brothers & Co., 1895.

The eleventh issue of the "Year-Book of Treatment" scarcely calls for commendation on our part. Our review of each previous year is entirely applicable to this number. It is well known by the majority of busy practitioners, and has long been considered one of the best compilations of medical progress in regard to the treatment of disease.

A. W. P.

[1] Lawrence *vs.* Brown, 59 N. W. Rep. 256.

A Treatise on the Nervous Diseases of Children, for Physicians and Students. By B. Sachs, M.D., Professor of Mental and Nervous Diseases in the New York Polyclinic; Consulting Neurologist to the Mt. Sinai Hospital; Neurologist to the Montefiore Home for Chronic Invalids; Ex-President of the American Neurological Association. One volume, 688 pages, 8vo, illustrated by 169 engravings in black and color, and a colored plate. Muslin, $5.00.

In this handsome volume we find an admirable addition to the growing list of treatises on nervous diseases by American authors. Dr. Sachs is, however, a thorough master of the German language and literature, and is thereby unusually fitted for the production of a work which in these times and in this particular field demands, in addition to a broad experience, wide reading. The bibliographical list which is appended to every chapter is an evidence of the author's conscientious study of the latest neurological literature, to which American writers have contributed no small part.

The style is clear and positive; the clinical descriptions and anatomic and physiologic intricacies are made plain by well-executed illustrations taken from the author's practice and from the most recent works. In these and other features the author has been helped by Drs. Joseph Collins and Alfred Wiener, to whom due credit is given. In the chapter on methods of examination, the author wisely says that the physician should train his powers of observation, so that by the recognition of the peculiarities of facial expression, of gait and stature, by the inspection of muscles, of deformities, and the like, he can at least suspect the trouble without putting a finger to the body. A good observer will thus succeed far better than the man who can never even suspect a disease, unless he has all his tools (percussion-hammer, thermometer, æsthesiometer, electrodes) constantly at his command. On the other hand, he warns against making a diagnosis unless the child has been wholly undressed, and one remembers that the patient has heart and lungs, liver, spleen, and intestines which, if diseased, may hold an important relation to the nervous disorder present. Among the valuable tables is one which shows the cranial measurements in children, at different ages, with illustrations by Benedict and Peterson. In the section on general diseases, epilepsy is discussed on the recognized theory that the attack is due to overaction of the cortical cells; that the bromides increase the stability of their resistance, and that we have no drugs that can in any sense be considered proper substitutes for them. Dr. Sachs does not believe in Erlenmeyer's claim that the combination of three salts acts better than the use of one alone. He favors Dr. Seguin's plan of giving bromides after the manner of giving quinine in malaria,—namely, by giving little in the interval, but by increasing the dose very much at the time when an attack is expected, or if the attacks are frequently repeated, to give the drug four or five hours prior to the time at which the seizures occur. Next to bromides cannabis indica is recommended and the regulation of diet enjoined. Albuminoids are allowed in small quantity with a limitation of the cereals. The surgical treatment of the eye-muscles for the cure of this disease is condemned.

As to chorea, the author believes that in its causation there is an undoubted seasonal influence, but that the recurrence of rainy and cloudy days and the frequent passage of storm centres are of more importance in bringing about a recurrence of attacks than in giving the first impetus to the disease. He is not convinced that nasal or ocular trouble, of which so much has been made of late, ever leads to true chorea. Rest in bed with an easily digestible diet he believes to be more efficacious than medicinal treatment, of which he says, "If one must use any drug in the cases of chorea, arsenic is to be preferred."

The chapters on the anatomy and physiology of the brain and spinal cord have been very carefully prepared. Dr. Starr has furnished the author with his table on spinal localization revised with additions and corrections up to date. A fine ex-

ample of the author's clear and instructive style is his description of speech defects, —sensory and motor aphasia. He shows that in children the blood-supply of the brain is quite different from that in the adult. Instead of hemorrhage occurring most frequently in the vicinity of the internal capsule and in the distribution of the middle cerebral artery, in the child this region is less frequently affected, by far the larger number of accidents occurring in the domain of cortical and pial vessels.

Dr. Sachs shows that little is to be expected in children from medicinal or surgical treatment in cases of cerebral tumor. Children tolerate operations upon the head very poorly, indeed. One great difficulty is that no matter how well we may locate the growth we can form no estimate of its size. In early life such tumors are frequently tubercular, and, of course, on that account the outlook is discouraging. A chapter on diseases of the mind closes this very interesting work. Some of the terms used vary somewhat from the usual forms, as, for example, morphium, myelosyringosis, paramyoclonia, and cornu amonis, but the typography is remarkably free from errors, and the type large and clear. G. H.

Remote Consequences of Injuries of the Nerves, and their Treatment. An Examination of the Present Condition of Wounds received in 1863-65, with Additional Illustrative Cases. By John K. Mitchell, M.D., Assistant Physician to the Orthopædic Hospital and Infirmary for Nervous Diseases, Philadelphia; Lecturer on Physical Diagnosis in the University of Pennsylvania. 12mo. 233 pages, with 12 illustrations. Cloth, $1.75. Philadelphia: Lea Brothers & Co.

The appearance of this work is a remarkable and gratifying proof that after thirty years the wealth of pathological material of the Civil War is yet available for clinical instruction. It is not likely that there will ever be gathered together again, in this country, the class of cases that were treated in the United States Army Hospitals at Christian Street and Turner's Lane, in Philadelphia. Aside from the remote possibility of actual warfare our own troops and those of the principal nations are equipped with weapons entirely different from those employed thirty years ago. With rifles of small calibre and the jacketed projectiles which penetrate without crushing and tearing the limb, the aspect of military surgery will soon have entirely changed. The author of this book has added greatly to its value and interest by supplementing the histories of wounded soldiers with those of eighteen cases of nerve injury occurring in civil life. The reader cannot fail to be impressed with the care and persistence with which all these cases have been studied, and practitioners will find the general chapters which follow full of interest and of valuable suggestions in the line of treatment.

The author does not believe in the possibility of primary or immediate union "by first intention" in nerves sutured directly after section, claiming that the evidence adduced for the very early passage of nerve influence does not bear close examination. Much of the discrepancy of views on this point is no doubt due to the difference of the subjects. Dr. Mitchell shows that even the physiological experimenter upon nerve sections, who has everything in his favor, having the control of the extent and the character of the injury entirely in his hands, has not yet even secured undoubted primary union. Accordingly, in a case of traumatic neuritis following a stab-wound of the ulnar nerve, for the relief of which the nerve was divided above the elbow, he remarks, "So good a restoration so soon (three months) is rare in the history of nerve wounds, especially when no suture is applied." In this position the author is supported by all the latest investigations. The publications of Howell and Huber, Willard and others show that primary and absolute union of a nerve without degeneration of the peripheral end does not occur; immediate and rapid return of function, however, has been often demonstrated, and is undeniable. Whether this immediate return is through direct transmission across the minimum amount of space, or whether the restoration of the parts to their normal positions in

some way assists other trunks in taking up the function of the injured nerve, is still uncertain.

An interesting feature of some of the records is the misreference of touch-sensation. A patient may refer touches upon his fingers to a point some distance upward, —for instance, mistaking contact with a finger-tip for a touch at the elbow or wrist. The fact that in almost every case of this kind the contact is perceived as if nearer the trunk than its real point would be a point in evidence that regeneration of the nerve progresses centrifugally. This phenomenon is the subject of some interesting letters by Professor Hugo Munsterberg, of Harvard, and Professor W. H. Howell, of Johns Hopkins University. G. H.

DOSE-BOOK AND MANUAL OF PRESCRIPTION-WRITING, with a List of the Official Drugs and Preparations, and also many of the Newer Remedies now frequently used, with their Doses. By E. Q. Thorton, M.D., Ph.G., Demonstrator of Therapeutics, Jefferson Medical College. Philadelphia: W. B. Saunders, 1895. Pp. 5–334. Price, $1.25.

This small manual has been prepared especially for the use of students, and as a book of reference for the younger members of the profession who may not be conversant with all the facts and small details necessary for correct prescription-writing.

The opening chapter deals with weights and measures, compares the apothecaries' system with the metric, which seems destined at an early date to supersede it, and gives an unusually full table of equivalent weights in both systems, which as a convenient reference will prove very useful. The second chapter is devoted to the details of prescription-writing. The construction of a correctly-written prescription is explained fully, and to this is added a brief consideration of the necessary amount of Latin grammar, and a long list of the more important Latin words showing their terminations and declensions. The subject of incompatibilities is then discussed in all its aspects. In the third chapter the various classes of official preparation are considered, and examples given as to the correct method of prescribing them. The fourth chapter treats of dosage, and the various methods of administering medicines. Many illustrations add to the value of this part of the work. The book closes with a list of the principal preparation of the official drugs and their doses, along with some of the newer and still unofficial remedies.

We can testify to the care with which this little book has been compiled, and can cordially recommend it, not only to students, but to practitioners generally who desire to improve the character of their prescription-writing.

A. D. B.

NOTE TO CONTRIBUTORS.

AUTHORS will receive liberal compensation for accepted articles, immediately upon publication; or reprints, if stated on the manuscript, will be furnished in lieu of the honorarium. It is distinctly understood that all articles appearing as original matter are for our exclusive use, and are not to be reprinted or to appear in any other publication excepting the Transactions of the society before which the paper may have been read. Illustrated papers are especially desired.

All matters of business, as well as subscriptions, should be sent to the INTERNATIONAL MEDICAL MAGAZINE COMPANY, 716 Filbert Street, Philadelphia.

Manuscripts, exchanges, and books for review should be addressed to the Editorial Office, 3709 Spruce Street, Philadelphia.